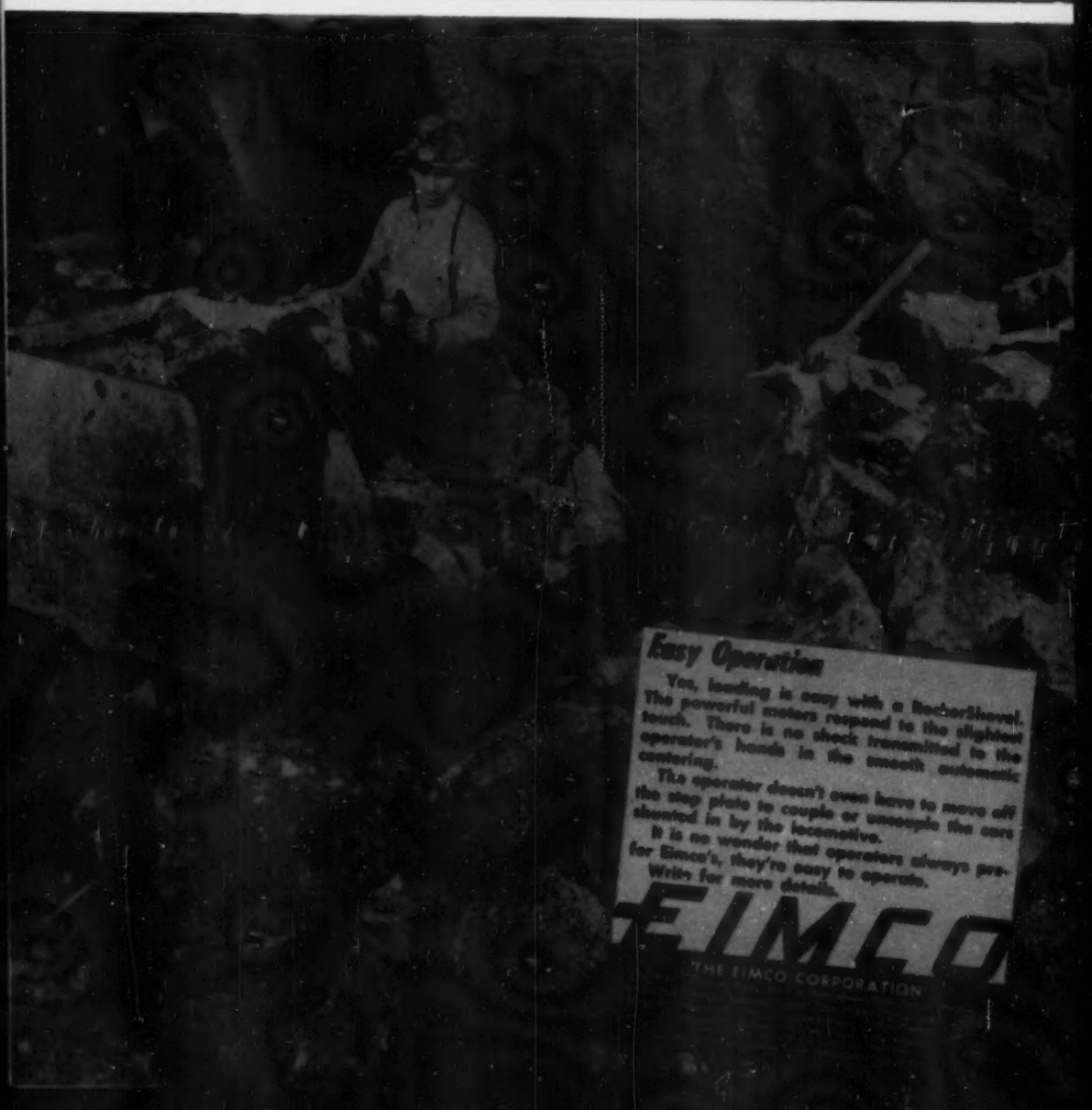


MINING WORLD

FEBRUARY, 1950

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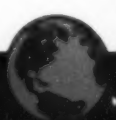
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SAMPLE LOCATIONS

| | |
|--|----|
| Capitol Concentrates | 7 |
| Colorado Plateau Uranium—by Norman Ebbley | 10 |
| La Purisima Concepcion—by John D. Mitchell | 17 |
| Mining Men and Their Activities | 20 |
| INTERNATIONAL SECTION | |
| Grab Samples | 23 |
| International Panorama | 25 |
| Light on Turkey's Minerals—by Falih Ergunalp | 28 |
| Highly Flexible Beneficiation Plant Handles Mesabi Ore—by E. S. Tillinghast | 33 |
| Prominent Men in International Mining | 36 |

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PLAN TO FOMENT DOMESTIC TIN INDUSTRY APPLICABLE TO OTHER COMMODITIES

There is some fuss being made about H. J. Res. 324 which purports to be directed toward the building of a domestic tin industry. The idea is a worthy one, but the bill is only a wishful-thinking statement of policy and it is hard to see what actually could be done under it to stimulate further prospecting, mining, and economical treatment of low-grade ores.

As has been pointed out in these pages in the past, it is well known that tin occurrences have been found widely distributed in the United States and that favorable formations are not uncommon. Very little commercial tin has been mined, even at wartime prices. Most government experts do not feel that the situation warrants the expenditure of federal money in what they consider the very dubious chance of developing considerable commercial sources here.

Representative Walter S. Baring of Nevada, no doubt under some pressure from the small but highly vocal local owners of tin prospects, has shown considerable interest in H. J. Res. 324. However, as has been mentioned before and is brought up now for Representative Baring's attention, the way to tackle a problem of this sort is to take the bull by the horns without equivocation and in direction. We need tin; we have indications; it is a problem in national defense; and we would prefer to have private capital do the work. The trick could be accomplished by a very short and to the point act, somewhat as follows:

"For a period of five years following the enactment of this Act, the Bureau of Federal Supply shall pay \$5 a pound for each pound of tin produced within the United States, its territories and possessions, including Alaska. All tin so purchased shall be placed in the National Security Stockpiles."

Such an act would have no complications. If, as many mining engineers believe, we have no commercial tin, and none is presented to the Bureau of Federal Supply for purchase, the government will be out nothing. However, under such stimulus, it is probable that large amounts of speculative capital would go into attempts to solve the problem, and not only the exploration of presently known deposits would result, but attempts would be made to improve the metallurgy. At the end of five years we

should know definitely what the possibilities are for production at market prices or at least we might have potential sources spotted for high-cost war production if we were pinched for tin. It is likely that very little government money would be spent in any case compared with the amount of private capital which would try for the bonus.

● Copper Requirements Estimated

The Copper and Brass Research Association estimates the copper requirements for at least the first half of 1950 will run to 100,000 tons a month. This indicates that large imports will be necessary. There seems to be no good reason why the small and marginal copper mines should not get a break, either through an incentive system or the Buy-American clause in the Stockpile Act.

● Aid Through Tax Revision?

It doesn't appear that any real tax revision is in view for 1950—at least none which will give aid to the mining industry.

● Let's Tell Harry

The mining industry of the United States is not exactly small stuff. Nearly 14 billions of dollars worth of minerals and metals was produced in 1949. Someone should tell Harry.

● LCA Will Finance Mining

"The Economic Cooperation Administration announced today the signing of a contract designed to aid in the development of deposits of lead and zinc to meet French requirements for these scarce materials and to increase the United States government's stockpile." So read a recent press release from Washington. The amount? A mere \$3,600,000 from Marshall Plan funds to be handed to the Newmont Mining Corporation. The place? French Morocco. Repayment? Over a seven-year period by shipment to the National Security Stockpiles. In addition, it is expected to supply 70 per cent of France's future lead requirements and 50 per cent of her zinc requirements.

The Tri-State area might consider succeeding under the name of New Morocco.

● Tax Reforms vs. Incentives

A lot of talk is going around about the advantages of tax reform in place of incentive payments to help the mining industry. That tax reform

would be an excellent thing scarcely is debatable. Everyone is for tax reform just as everyone is against sin. Established mines would be materially helped by proper changes in the tax structure. New mines could be helped and encouraged by tax reform, if venture capital could be induced into such ventures, but the mines which suffer inability to meet costs as the usual market prices would not benefit materially. If there are no profits, tax relief is a chimera—only production incentives or sufficiently high prices will help this large group. Their owners should not be diverted from their objectives by talk of tax relief, desirable as it may be.

If we really want venture capital to go into new mines there is a way to encourage the investor—no federal taxes at all on a new property for five years after coming into production AND the income to the investor in such a property to be tax free for five years following the first distribution of profits. But let's not hear any more of tax relief as a panacea for mines which simply cannot make both ends meet due to economic conditions. If the country needs these mines, and their ore extensions, we would frankly support them. If not, we should, in the words of former-Secretary Krug, "Let them die."

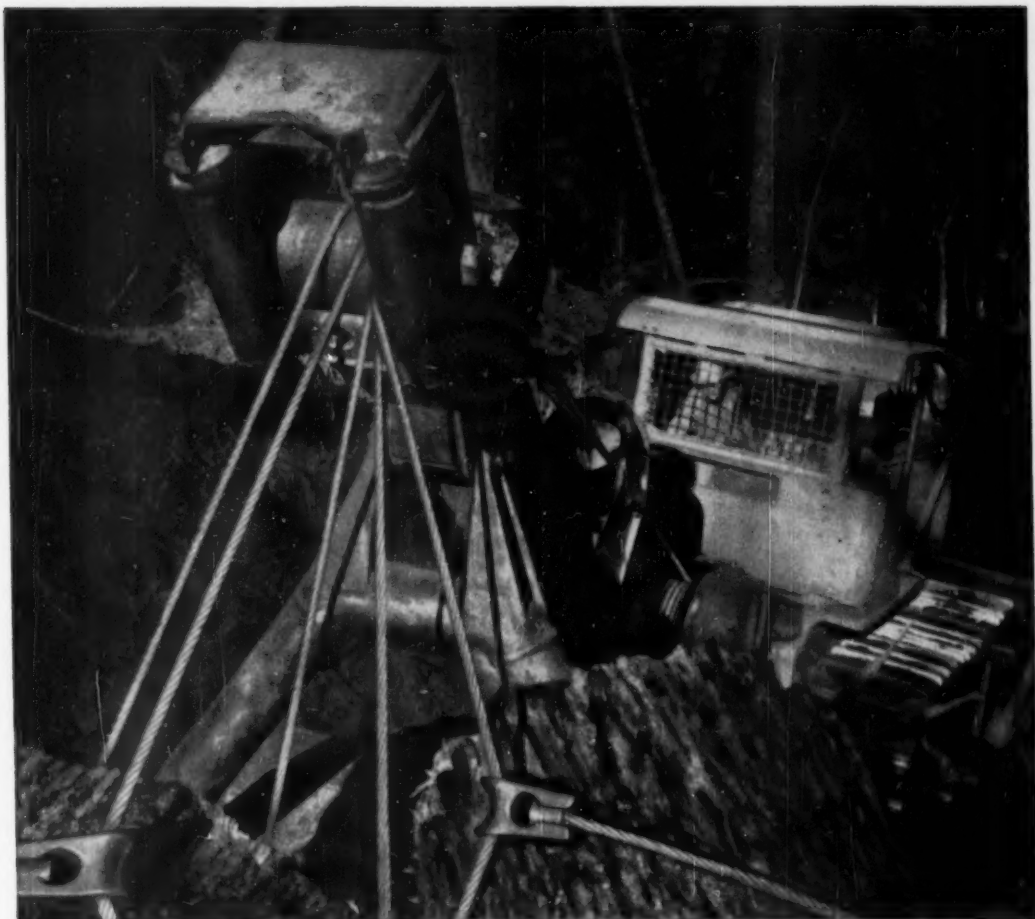
● Amalgam As Unprocessed Gold

The inclusion of amalgam within the Treasury Department's definition of unprocessed gold will enlarge the sources of the gold which is being sold on the open market at premium prices. Such amalgam must not have been heated or treated in any way before sale.

What if the purchaser retorts the amalgam? The Treasury so far is silent on that point, but it is pretty clear that the further negotiability of the gold would be questionable.

● Supports Brannan Plan

The President appears to be giving support to the continued efforts to press the Brannan plan, which is nothing more than a premium price plan applied to agriculture. Some of the farmers are beginning to come around as they find that lower consumer prices will permit increased exports. Why the President has his thumbs down on subsidies for mining while approving them in all other quarters is a great mystery, especially as in the case of mining the national defense and security are involved, a claim which scarcely can be made for farm products.



Tractor arch logging using Tiger Brand Wire Rope at Jensen Lumber Co., Willits, California

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Diamond drilling operations are extensive throughout the Plateau. Mineral Engineering's drilling organization consists of Bayles Brothers, Salt Lake City (photo above); R. S. McClintock, Spokane; R. E. Selby, Grand Junction; John Johnson of Nucla, Colorado, and Mineral's Engineering of Grand Junction. At right is seen an Allis-Chalmers MD5 tractor with shovel attachment loading ore from the surface workings of the Cactus Rat mine in Utah.

COLORADO PLATEAU URANIUM—

**Worked principally from small mines
it presents some specialized problems**

A resume of activities during the past two years in the Colorado Plateau uranium-vanadium region would indicate that many of the growing pains are being cured and the more cloudy issues are being settled. For a year the resounding battle between the Atomic Energy Commission and the small operators resulted in such a din that it was indeed a problem for the outsider (and in many cases even those vitally concerned) to determine more than vaguely the general issues.

Before proceeding, an explanation of the term "small operator" is necessary. In differentiating between small and large operator, the line of demarcation is clear cut in the uranium field. The two companies in the ore buying and processing business, the United States Vanadium Corporation and the Vanadium Corporation of America, are the two "large operators" and everyone else producing a pound of ore is classed as a "small operator." Tonnage produced does not enter into the classification as might ordinarily be expected in that all ore produced in the area has to be sold to either one of the two processing companies or to the government. Thus, some of the larger tonnage producers such as F. A. Setton of Dove Creek, Colorado, and Minerals Engineering Company of Grand Junction,

By Norman Ebbley
Ouray, Colorado

Colorado, are considered small operators, as their only outlet for crude ore is to one of the above mentioned purchasers.

Early Problems

At the initiation of the Colorado Plateau government uranium production program, the Atomic Energy Commission appeared satisfied to deal mainly with the two larger interests (but on terms not made public) and offered the small operators an ore purchasing schedule obviously too low. The Commission was apparently overlooking the part played during the war years by the lesser and small operator when they produced 40 percent of the newly mined ore which went into the making of the first atomic bombs. Those familiar with the Colorado Plateau uranium-vanadium deposits knew that the small, irregular shaped ore bodies generally only a few feet across could best be worked as in the past by lessors on a small scale. It was generally acknowledged that the area was a "tough" leasing proposition and that the lesser and small operators who had made appreciable stakes in the field could probably be counted on the fingers of one hand.

Yet, the Atomic Energy Commission's first policies outlined in Circular No. 3, dated April 9, 1948, appeared to the small operator to ignore the above facts, so critically proven by past experience, and immediately the issues piled up. These, if listed in the order of the furor they caused, might be listed as follows:

(1) Price The original price schedule established by the Commission was felt to be far too low by the members of hastily formed Uranium-Vanadium Cooperative Association—an organization boasting 100 percent membership of all producers in the region, other than the two large companies. The Association submitted statistics based upon average operations and grades of ore to the Commission showing that with increased cost of labor, supplies, and equipment, the basic cost for producing a ton of ore was approximately \$27.29. The return from a ton of ore having an assay of 25 percent U₃O₈ and 1.80 percent V₂O₅ (fairly average for the general "run" of the ore mined) under the initial price schedule was \$23.91—clearly indicating a loss. The Commission quoted their own set of figures indicating a fair profit to the average small operator. It wasn't, however, until the amount of ore being delivered to the Atomic Energy Commission's Monticello receiving

station took a serious decline, that the producer's argument was vindicated. The small producers simply were going broke. It was obvious to all concerned that the two processing companies would naturally be opposed to any increase in price for contained U₃O₈ in crude ore as each concern had its own secret contract with the Atomic Energy Commission for processed uranium. Any increase in crude ore prices would reflect in a decrease in the profit received by the processor for the uranium product.

(2) *Trucking allowances.* The allowance of \$0.06 per ton mile was deemed inadequate to transport the ore from the mine to the processing plant. Figures were presented showing costs from \$0.02 to as much as \$0.05 per ton mile over and above the \$0.06 paid by the Commission. The Association requested relief on this and pointed out the need for more and better access roads into the mining areas.

(3) *Lime content restrictions.* The Atomic Energy Commission's maximum allowable lime content of 6 percent, being strictly enforced, was forcing many producers to discontinue operations. The Association requested easing of the maximum lime limit so that if overall averages of lime in ores did not exceed the established limits, the ore slightly exceeding the limit could be purchased and mixed with ores having lower lime content.

(4) *Government subsidy.* The Atomic Energy Commission presented an argument against paying more for domestic uranium than it does for foreign uranium. The Association pointed out the subsidy paid to farmers and other businesses under government tariff laws, stressing the importance of uranium and the advisability of developing the Colorado Plateau uranium region to its utmost in anticipation of foreign sources being possibly cut off in the event of war.

(5) *By-Product attitude.* The Association charged that the Atomic Energy Commission is retarding uranium production by tying it to the processing methods of the vanadium industry and accordingly not using the most modern metallurgy for maximum recovery of the uranium.

Later Revisions by AEC

Probably as a combination of the several factors, the Atomic Energy Commission modified the original Circular No. 1. The loud protest by the small producers; the unfavorable publicity the Atomic Energy Commission was receiving at the time from certain activities not connected with the Raw Materials Division; the arena being raised by the Uranium-Vanadium Cooperative Association concerning the Atomic Energy Commission's contracts with the two vanadium companies; the surprising

Supposedly more sought after than gold, a uranium mine is not without headaches!

In the accompanying article Mr. Ebbley has set forth, in interesting fashion, details of current mining activity in this country's principal uranium producing district, together with an enumeration of some of the handicaps that have confronted the operators since the beginning of the present aggressive mining and development program. Judging from Mr. Ebbley's report and numerous other advices to the editors of this journal, it would appear there is a strange contrast between the lot of the actual uranium producer whose efforts make a good share of the whole atomic energy program possible, and the more publicized and spectacular government installations which take the stuff and do things with it. No cost has been spared in the billion dollar atom plants with their model cities and utopian working facilities, yet the miner has pretty much been left to deal with his problems and meet his costs as best he can.

To appreciate fully the problems confronting the uranium miner, one must have some understanding of the difficult mining conditions usually encountered in uranium-vanadium formations on the Plateau. In addition to this, the operator's situation has not been made easier by the frequent inequalities resulting from the methods of determining the payment made for the widely varying types of ore produced; not by the misleading publicity given to the supposed hazards of mining radioactive minerals.

On the mining side, one has only to get some idea of the geology of typical formations in order to appreciate the problem. Orebodies frequently consist of irregularly formed tabular layers, the long dimensions lying roughly parallel to the bedding planes. Individually, they are usually not confined to a single bed of host rock and some small bodies are nearly equidimensional. Individual deposits may vary from less than one foot to several feet thick and they may thicken and swell locally to 15 or 20' to a maximum of 30'. For example, deposits in the Morrison formation are, generally speaking, spotty and may vary from a few feet to hundreds of feet across.

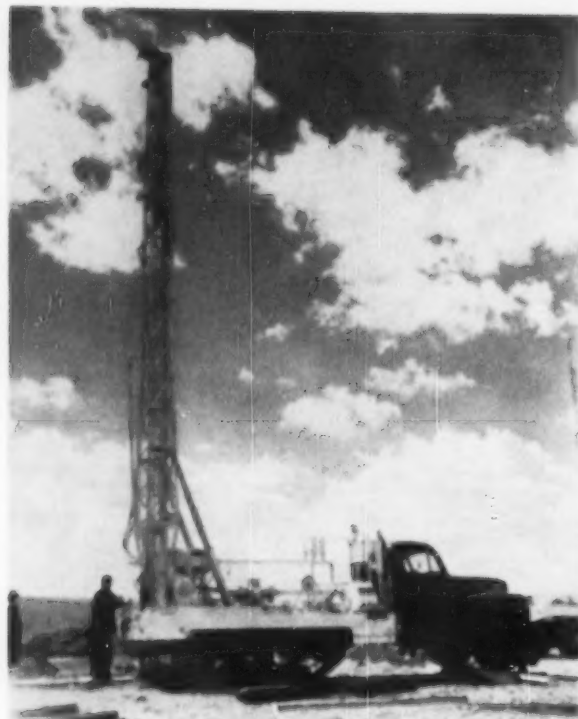
Ore sometimes blends into the sandstone gangue. Commonly, margins are more or less ill defined, explaining why operators are frequently uncertain about their mining pending assays of their last shipment. An ore-bed, upon crossing the bedding, oftentimes assumes a characteristic structure termed a "roll" by the miners in the area. Difficult to describe, these structures have many variations. Generally, they may have a long axis roughly parallel to the bedding plane. Sometimes these orebodies have a form roughly cylindrical. Rolls in any one orebody and those in adjacent workings may have the same orientation. Structure affecting the deposits differs from place to place. Generally, the deposits are flat lying or dip at low angles. On the other hand, some deposits are found in steeply pitching beds. As Mr. Ebbley has pointed out, such widely varying, irregularly shaped and frequently small orebodies can be successfully worked only by leasers on a relatively small scale.

On the matter of labor, certain problems have resulted from misleading publicity concerning potential hazards in working with uranium ores. In complete fairness it should be pointed out that uranium (carnotite) ore have been successfully and safely mined in Colorado for more than 40 years. Eminent qualified AEC personnel with years of experience in the uranium business report no injuries or harmful effects to men working in uranium mines and mills. Many individuals are living in Colorado and Utah who have mined and processed uranium ores for over 25 years, and despite publicity to the contrary there is no medically substantiated case of uranium poisoning in Colorado. The latest official reports of the AEC make no mention of any worker ever being hurt or injured by radiation at a carnotite mine or processing plant. All injuries received were from uranium after it came out of a "pile." Operators in the district feel it unfortunate that such inaccurate publicity should have occurred at this time, when greater production may well mean the security of the United States.

With regard to price, operators point out that payment for only ten times as much V₂O₅ in the ore as contained U₃O₈ works a hardship on certain small producers whose ore is relatively leaner in uranium. Larger operators or those operating several mines frequently can blend their low-uranium high-vanadium ores with other ores of higher uranium content and thus maintain a desirable ratio of less than 10 to 1. Another point of disagreement has been the refusal to date of the AEC to pay for radium contained in the ore. Also, during the last war the Metals Reserve Company in many instances paid a higher price for the V₂O₅ in the ore than the AEC now pays. On some ores it works out that the miner receives only 62 percent as much for his vanadium as he did during the war.

Ore buying and settlements at Monticello, Utah, originally were very slow in getting started, with the result that a number of operators went broke waiting to ship ore and get paid for it. Settlement delay still is causing some hardships. The small producer with little or no capital frequently finds himself wondering if his shipment will pay for its production. Also, he often is in a quandary as to whether he should continue to mine the same ore, whether he should resort to further upgrading, and most important, whether he'll get enough for the last shipment to pay for 10 days more prospecting and development.

The slowness, difficulty and cost of securing an accurate and impartial uranium assay has worked a particular hardship on the small shipper. The customary system of sampling, assaying, comparing, controlling and umpiring has not worked out too well under conditions existing in this type of mining. The small shipper usually finds himself accepting the buyer's assays and glad to get the check. He needs the money for groceries, gasoline and payments on equipment!—ED.



Minerals Engineering has been using for development drilling, wagon drills designed by the company and mounted on half-tracks, the tower of which has a 23-ft. slide permitting 18-ft. changes of steel. Approximately 100 holes were put down at Calamity Mesa from 3 to 60' in depth. The men seen are George Gallant (driver) and George Moritz, master mechanic.

news that the Commission had turned over large groups of government owned mining claims to the two large companies without the usual open bidding—all undoubtedly influenced the decision by the Commission to issue Circular No. 3, effective in February 1949, alleviating to some extent the small producer's plight. In general, Circular No. 3 provided for: (a) security in capital investments by extending the minimum price guaranteed to June 30, 1954; (b) providing a development allowance of 50 cents per pound of U_3O_8 on ores containing more than 15 percent U_3O_8 ; (c) certain adjustments in the price curve of ores assaying between 0.1 percent U_3O_8 and 0.2 percent U_3O_8 ; and (d) certain restrictions on the refractory high lime ores were removed.

As a result of the upward revisions made by the Atomic Energy Commission, lessors and small producers were very active throughout the remainder of 1949. A short summary of the activities of the two larger companies and the small operators during the past 12 months is expressive:

U. S. Vanadium Operations

The Rifle plant of the U. S. Vanadium Corporation is concentrating 200 tons per day from ores mined

primarily in the Uraven area and to a lesser extent in the Meeker area. Approximately 110 tons of this ore is being trucked daily from the Gateway and Uraven areas. The Rifle mill combines a roasting and water leach process for vanadium recovery plus an acid leach for uranium recovery. A complete sample plant has been recently installed, and many additions have been made to the mill during the past year in an endeavor to obtain better uranium recovery. The Rifle mine was shut down in August because of the flooded vanadium market, and the relatively low content of uranium in the Rifle ore.

During the past summer, the U. S. Vanadium Corporation began rehabilitation of its Uraven plant which has been idle for the past few years. This plant started roasters December 1, and the mill is scheduled to begin operating on January 1, 1950. The company at present is not actively operating any of their mines, but have about 40 operations under lease to small operators. These operations are scattered throughout the following areas: Polar Mesa (Grand County, Utah); Egnar and Gypsum Valley (San Miguel County, Colorado); Bull Canyon, Long Park, Dolores, Club Group, Joe Dandy,

Monogram, Thunderbolt and Eagle Basin (Montrose County, Colorado); Calamity Mesa and Lumsden Canyon (Mesa County, Colorado). Minerals Engineering Company have had four diamond drilling units drilling under contract for the U. S. Vanadium Corporation steadily throughout 1949.

On November 1 the company completed the installation of a new sampling plant at Thompson, Utah, where custom ores will be received from the mining districts of eastern Utah—Greenriver, Temple Mountain, Yellow Cat, Polar Mesa, and the Moab areas. The ores received and sampled at this new plant will be trans-shipped to Rifle via Denver and Rio Grande Western Railroad.

VCA Operating Two Plants

The Naturita mill of the Vanadium Corporation of America operated steadily throughout the year on ores received from lessors and other small operators. The Atomic Energy Commission leased the wartime Durango plant to the Vanadium Corporation of America which has expanded the plant's processing facilities to include muscovite ores from the Barlow Creek district, Dolores and San Juan Counties, Colorado, as well as the Navajo Indian reservation to the south in

New Mexico and Arizona. During the year the company experimented with a small plant erected at Hite near Blanding, Utah, to treat the copper-uranium ores of the White Canyon district. The company operated mines, partially under lease, at Hermosa Creek, White Canyon, Dry Valley, and in the Naturita area.

Minerals Engineering Expansion

The Minerals Engineering Company, an organization formed in late 1948, greatly expanded its activities during 1949 in its mining operations and contract diamond drilling business. The operating personnel of the new company has been long identified with both the mining and processing of ores from the Colorado Plateau uranium-vanadium region.

The company at present has a mine operating in the Calamity area on the Arrowhead group. Seven miners are employed in a mechanized operation, using diesel loaders underground—the ore being shipped to Rifle, a distance of 130 miles. A mining operation under government lease on the Legin group in the Slick Rock area by the company is utilizing an Eimco B-12 mucking machine in driving inclines and underground headings. Surface stripping is being done with Caterpillar diesel equipment. The ore produced is shipped to the Atomic Energy Commission's Monticello plant, a distance of 47 miles.

The Minerals Engineering Company has several of its own properties under lease. A. C. Rinderle has just completed a new incline on the Arrowhead group of claims in the Calamity Mesa area. The ore being produced by four miners is being shipped to the Rifle plant. Long and

Phillips are leasing on Minerals Engineering Company properties on the Cactus Rat group near Thompson, Utah. The operation is mainly open cut and four miners are employed. The ore is shipped to the U. S. Vanadium Corporation's receiving station at Thompson.

The Minerals Engineering Company has been using for development drilling wagon drills designed by the company mounted on half-tracks, the tower of which has a 22-foot slide, permitting 18 foot changes of steel. On Calamity Mesa approximately 100 holes from 3 to 60 feet in depth have been drilled recently with the wagon drills resulting in the blocking out of one known deposit, and the discovery and development of two new ore bodies. The company has at present a total of 25 portable diamond drilling units under contract to government agencies and private companies.

Sitton Largest Independent

F. A. Sitton has an operation employing 33 miners on the Mike O'Neil group of claims in the Radium-Sitton area west of Egnar, Colorado. Two diamond drills have been operating steadily for several months in development and exploratory drilling. A new incline is being driven at present on the Radium No. 7 claim with an Eimco incline loader. The ore produced from this area is being shipped to the Atomic Energy Commission's Monticello plant in Utah.

The recently formed Sitton-Dulaney Corporation has acquired the stock of the Colorado Uranium Corporation and purchased additional mining claims from F. A. Sitton. Mr. Sitton has transferred all of his

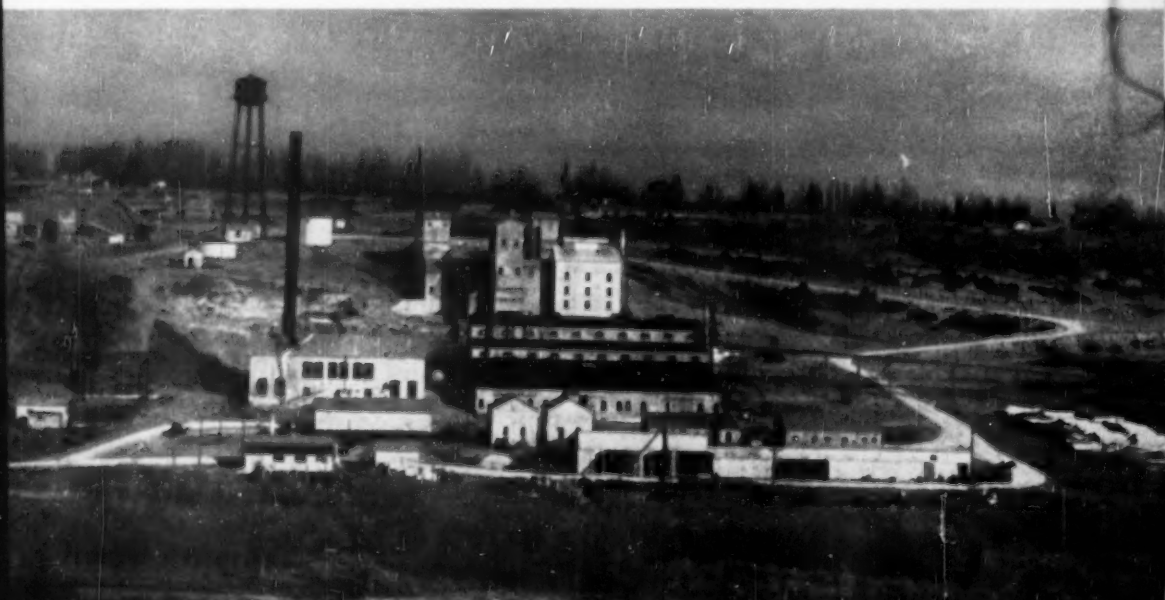
uranium claims to the new corporation, making it the largest uranium producer in the United States.

Other Lessors Operating

Fred Stern has been employing eight men in Blue Creek, northeast of Uraven, on property leased from the Craig interests. The operation consists of surface stripping and open-pit mining, and the ore is shipped to the U. S. Vanadium Corporation's Uraven plant. Jess Tronimel has been employing from two to four miners on his own property located on Flat Top Mesa in the east Gateway area. Ore produced from the operation is being shipped to Rifle, Colorado. The M and D Mining Company has been employing six men in open pit mining on Tenderfoot Mesa in the east Gateway area. The ore produced from this mine, the Mammoth, is being shipped to the Rifle plant. Three miners are employed at the Abergast Mine on Outlaw Mesa, also in the east Gateway area. Ore produced is being shipped to the Rifle plant.

At Thompson, Utah, the Utah Alloys Company has from 10 to 16 miners, mainly leasers, working in the Yellow Cat area on company claims. The ore is shipped to the Monticello, Utah, plant, and to the U. S. Vanadium Corporation's receiving station at Thompson, Utah. Tom Skidmore is operating a lease on government owned ground on the Legin group in the Egnar-Slick Rock area, San Miguel County, Colorado. Eight to 10 miners are employed, and the ore is shipped to Monticello, Utah. Bill Hooton, owner of the Owenby group in the Egnar-Slick Rock area, is employing from eight to 10 miners

The Monticello plant was completed and operated during the war by Vanadium Corporation of America and has since been remodeled with considerable change in the uranium-vanadium recovery methods. Engineering, remodeling and operation of the plant has been under contract to the Galigher Company of Salt Lake City.





Narrow workings like these at the Arbest mine of Outlaw Mesa are typical of many. Here the production averages a ton a day per man, with emphasis on clean mining and considerable rock sorting.

in his operation. The ore produced is being shipped to Monticello, Utah.

Five Plants Operating in '50

It appears now that five processing plants will be in operation by January, 1950. These are the U. S. Vanadium Corporation's Rifle and Uravan plants, the Vanadium Corporation of America's Naturita plant, and the Atomic Energy Commission's Monticello and Durango plants. To keep these five plants in full operation would require the mining of 700 tons of ore a day—a greatly stepped up production over the present rate. Can 700 tons per day be produced under the present price schedule? The consensus of the mining industry active in the uranium field is No!

The USGS Survey Program

As early as 1939 the Federal Geological Survey had begun comprehensive geologic studies of the carnotite deposits occurring in the Colorado Plateau area, and continued this investigation through the war years.

A long range program of exploration for carnotite ore and to determine probable reserves in the Colorado Plateau Uranium-Vanadium region was undertaken by the Geological Survey in November 1947. This program, authorized and financed by the Atomic Energy Commission, involves in any particular area, first, a preliminary geologic study followed by an extensive campaign of diamond drilling. The areas selected are mainly away from known deposits, ground that has not been explored and would not likely be explored by private industry principally because of high risk.

The rate of drilling by the Geological Survey has been approximately 200,000 feet of hole per year, and to date the results have been highly successful. Many new ore bodies, beyond the usual prospecting range of

small operators, have been discovered and some already are being mined.

At the present time the Geological Survey has 25 coring drills operating under contracts. These units are dispersed as follows: (1) Eight drills are being operated by the Odom Drilling Company of Lubbock, Texas, in the Longpark and Club Mesa areas, west of Uravan, Colorado. The contracts totaling 60,000 to 80,000 feet, were begun in March, 1949, and are scheduled to be completed in February or March, 1950. (2) Nine diamond drills mounted on half-tracks are operating on Outlaw Mesa in the East Gateway area under contract by Minerals Engineering Company of Grand Junction, Colorado. Present plans are to recess this project because of winter conditions in December 24 and resume activities in the area the first of April, 1950, under the same contract. Prior to November, 1949, 92,000 feet of drilling was completed on this mesa. (3) Eight diamond drills are operating under a 40,000 foot contract held by the Matheny Drilling Company in the Slick Rock area in San Miguel County, and Joe Dandy area in Montrose County, Colorado. This contract is scheduled to be completed in February, 1950.

Sprague and Henwood, diamond drill contractors, were awarded on December 15, 1949, a contract for 12,000 to 18,000 feet of preliminary core drilling in the Slick Rock area and in the Indian country of the Carrizo Mountains in northeastern Arizona. The basic price for AX-core under this contract was \$2.25 per foot.

The Geological Survey usually follows a procedure of letting comparatively small, 10,000 to 20,000 foot,

contracts in new areas so that pertinent data on ore occurrences, stratigraphy, drilling and coring conditions, accessibility under varying weather conditions, contractor's performance, etc., can be obtained so that the engineers and geologists will be in a better position to formulate efficient plans for subsequent larger contracts. The geologists have eliminated much of the coring practiced during the early phases of the program and now approximately 50 percent of the footage drilled is non-coring. Core recovery averages over 80 percent. Average bid prices have held at about \$1.85 per foot, but recent contracts indicate an upward trend in price. The overall cost of the Geological Survey drilling—not a fictitious figure dreamed up for public consumption, but including all costs connected with the Survey program—is approximately \$3.00 per foot. This is an exceptionally low figure considering the adverse conditions under which the drilling is done six months out of the year and is only obtained by the competition existing among the drill contractors and by the efficiency practiced by the seasoned personnel directing the Survey program.

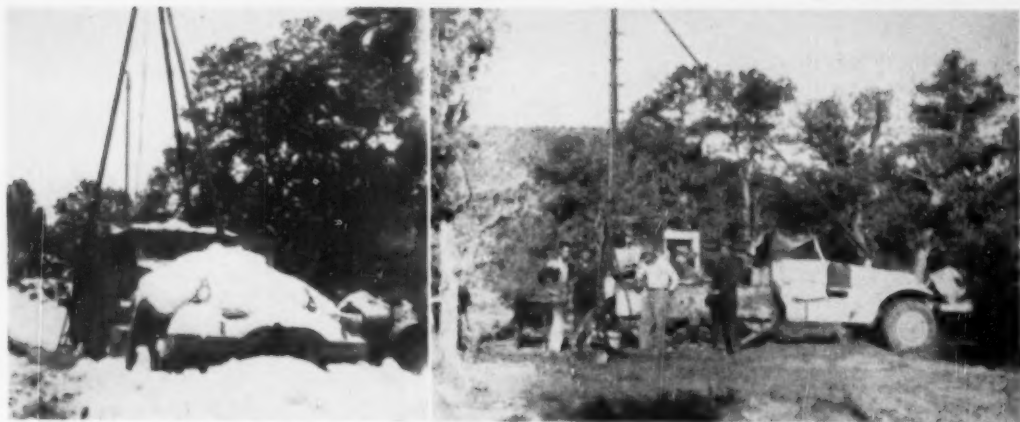
In addition to the geological mapping and diamond drilling, the Survey has crews doing regional mapping, completing stratigraphic studies designed to give additional information on local and regional variations in lithology, and personnel working on problems of sedimentary petrology in laboratories.

AEC Activities and Functions

The Colorado raw materials office of the Atomic Energy Commission in Grand Junction has been the hub of

Widely scattered ore deposits require highly portable and rugged equipment, as the photo illustrates. This half-track unit, packing a 315-cu.-ft. I-R compressor, serviced drilling operations in a wide area last summer. Picture was taken at the Cactus Hat mine near Thompson, Utah.





Drilling goes on in winter and summer alike in a constant effort to keep reserves as far ahead of mining as possible—no easy task considering the limited erratic character of most deposits. The scenes above were at the summer drilling at Calamity Camp and the winter job on Outlaw Mesa.

all activities being carried out in the uranium-vanadium region. Consequently, it has been the recipient of invectives (probably due mainly to its inability to clarify issues because of security restrictions) accusing highhandedness, mismanagement, and inefficiency. As it happens, the Colorado raw materials office receives its policies and decisions from higher sources, and in most instances can only carry out orders. However, where there is so much smoke there is probably some fire, and significantly the Atomic Energy Commission has recently endeavored to smooth out the situation by the addition of directing personnel experienced in the mining problems involved.

Some of the more important activities of the Commission since the initiation of the program have been: (1) The leasing of the wartime Durango plant to the Vanadium Corporation of America who have expanded the plant's processing facilities. (2) Remodeling the Monticello mill and installing an efficient sampling unit. This work, being done under the direction of Galigher Company of Salt Lake City, Utah, is completed and the plant was "blown in" in September. The American Smelting and Refining Company is purchaser and sampling agents for the Monticello plant. (3) Aiding the Geological Survey program by the construction of field camps for drilling and geologic personnel, road construction and maintenance, automotive and equipment maintenance, and associated services. Walker-Lybarger, Grand Junction contractors, carry out this phase of the program for the Atomic Energy Commission. (4) Exercises jurisdiction in selection of the areas which will be withdrawn from the right of mineral entry, and the release of these areas, or portions thereof, in the event that no uranium deposits are found. (5) Licenses all transfers, distributors, and processors

of source material under the Atomic Energy Act of August 1946, and exercises complete authority on "security," especially directed toward refined concentrates. (6) Actual small scale mining of some deposits on government owned claims to determine accurate production costs for comparative value, as well as the leasing of government claims to operators. (7) Maintains a staff of Atomic Energy Commission geologists and engineers and enters into drilling contracts on projects patterning after the work being done by the Geological Survey. Unfortunately, this phase of the Atomic Energy Commission program "for the purpose of comparing results obtained by the Geological Survey" (government double-talk for duplication of effort and expense) has had considerable difficulty in gaining momentum. Staffed with "long-haired" geologists, ill-equipped to compete in the field on exploratory work with the veteran Geological Survey personnel, the Atomic Energy Commission's drilling program took a year and one-half to get started—costly time spent mainly in observation of the high-gear Geological Survey program.

After two or three false starts, a contract for 100,000-200,000 feet of hole to be drilled in three areas—Calamity Mesa, Colorado, Polar Mesa, Utah, and the Blanding district in Utah, was awarded to Roger Hybarger and Son, core drill contractors. New in the carnotite field and lacking the "know how" of the seasoned contractors operating in the region, the contractor, although failing to present the specified "bid bond," was awarded the job. The price per foot and lack of experience in the particular field foreshadowed, to everyone but the Atomic Energy Commission (and the bonding company), the contractor's inability to successfully complete the contract. In September notice of

failure in performance was given, but the completion of the remaining footage was assured by Minerals Engineering Company who took over the contract on October 7. The Minerals Engineering Company's Drilling Syndicate, active in the uranium field, consists of Boyles Brothers, Salt Lake City, Utah; R. S. McClintock, Spokane, Washington; R. E. Selby, Grand Junction; John Johnson, drilling contractor from Nucla, Colorado; and Minerals Engineering Company of Grand Junction.

Fifteen drills are in operation on Calamity and Tenderfoot Mesas under this contract. Plans are to shift the Calamity drills to the Blanding (Cottonwood District) this winter, and on May 1, 1950, to consolidate both crews on Polar Mesa.

With most of the "kinks," inherent to a program such as being sponsored by the Atomic Energy Commission in the uranium field, being gradually ironed out, it now appears that rapid progress will be made in the discovery and mining of new carnotite deposits. Although production and processing of uranium ore is rigidly controlled by the Atomic Energy Commission, the old "equalizer" of supply and demand still dominates the production picture.

If the present goal is 700 tons of crude ore per day, there is considerable question if it will be obtained without a boost in price. "The few small operators making good money can still only produce a limited tonnage from the small in-and-out deposits. The bulk of the added tonnage will probably have to be produced from lower grade deposits which under the present price schedule are not profitable—unless perhaps mined efficiently with mechanized methods—a new idea in the field proving successful in a few mines.

The next twelve months will tell the story!



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LA PURISIMA CONCEPCION

La Purisima Concepcion (The pure Conception) is believed to have been one of the richest mines ever discovered by the Indians of Primeria Alta, as this part of the country was called by the early Spaniards. The story of the mine is told in old records brought from Spain by Don Ricardo Ortiz of Hermosillo, Sonora, and Don Santiago Daiz, former Governor of Baja California, Mexico.

According to these records, the discovery of rich native-silver float and the outcrop of the vein was made by the Opata Indians in 1508, about 15 years before the Spaniards beached their ships on the east coast of Mexico. As late as 1750 the mine was being worked, but difficulties arose when the second revolt of the Pima tribes occurred. During the next two years the missions were plundered and partly destroyed, and all mining ceased. Although peace returned in 1752 the missions were not occupied until 1754.

The following description is taken from the old Spanish document:

"La Purisima Concepcion mine was located four leagues (12 miles) south of the Tumacacori Mission. Follow straight ahead through the pass of Los Hanos to the south about three leagues (9 miles) from the Guadalupe mine, which is one league from the big gate of the Tumacacori Mission to the south, to another pass or gateway, called the Gateway to Ague Hondo (Deep Water). To the south from this pass runs a creek that empties onto the desert near the old town of Santa Cruz. The mine is to the east of the pass.

"Below the pass there are 12 arastras and 12 patios. There is a tunnel 300 varas long that runs to the north and at about 200 varas from the mouth of the mine a tunnel, 100 varas long, leads from the main tunnel to the west. The ore in the face of this tunnel is yellow and is one-half silver and one-fifth gold. Fifty varas from the mouth of the mine in a southerly direction will be found planchas de plata (slabs of silver) weighing from 25 to 250 pounds each. In the rock above the mouth of the tunnel is the name Purisima Concepcion, cut with a chisel. The mouth of the tunnel is covered by a copper door and fastened with a large lock."

There is a mass of evidence to indicate that the ancient workings are the west end of the Pajarita Mountain and El Ruido (Mountain of the Noises). Years ago a saloon keeper in Nogales, Arizona, grubstaked a prospector to search in and around the Pajaritas and El Ruido. The old man was gone for about six weeks, then one day he appeared in front of the saloon with his two burros loaded with chunks of native silver which he said he had found scattered over the surface of the ground in the pass between the Pajaritas and El Ruido. These chunks were believed to have been eroded from some kaolin outcrops known to exist in that section of the country. The prospector started out to celebrate his good fortune, and the next morning he was found dead. The saloon keeper was never able to find the source of the rich float.

Then there was the prospector who resided at Tubac. Shortly after the Mexican War and the signing of the Gadsden Treaty, he made many trips to the Pajaritas and each time returned with large pieces of native silver.

Another story, based on good authority, tells that a few years ago a prospector pitched his camp in the pass between the Pajaritas and El Ruido. He had prospected for a week or so when his camp was washed away by a cloudburst that sent a wall of water down the wash. Presumably, he was washed away with it as no trace of him has ever been found. The day before the cloudburst, a friend of the prospector had visited him at the camp and been given a roll of undeveloped film. When developed, this film showed the entrance to an old mine and the front part of a tumbled-down mission or chapel which no one in that part of the country could identify. The little church possibly was a Visita for the Tumacacori Mission for it was not unlike those frequently erected by Spanish Americans in the vicinity of the mines in which they were employed.

Mexican and Indian vaqueros believe that El Ruido, the Mountain of Noises, is haunted and avoid it as much as possible. I once rode a mule across the foothills of this mountain and his hoofbeats sounded like a bass drum.

Tumacacori was founded in 1691, but how long the Jesuits worked the mine is unknown. They were operating a number of gold and silver mines in the mountains around the mission in 1767 when King Charles III issued the edict expelling them from Spain and all its possessions for failure to pay one-fifth of the gold and silver to the Spanish Crown.

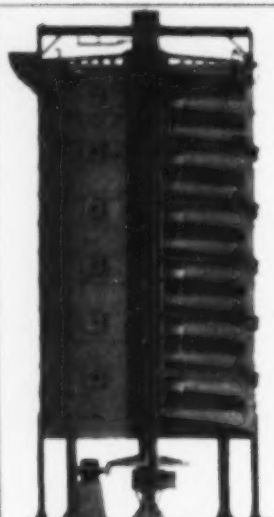
Foreseeing that they would be unable to take any of their treasure with them, the Jesuits buried it near the missions or in the mines, hoping to be able to return for it at some future date. They never returned and the treasures and many of the mines remain undiscovered.

That the Jesuits, while spreading the doctrine of Christ, carried on mining operations and collected much gold and silver, is indicated by the ruins of old adobe smelters and extensive slag dumps that were found on the east side of Tumacacori Mission. More than 2,000 mule loads of virgin silver and 205 loads of gold and silver bullion were said to have been taken from Tumacacori Mission by the padres and concealed in the Guadalupe mine one league southwest of the ruins.

In view of the fact that so much native silver float has been found in the vicinity, it is my belief that the story of the Pure Conception mine is a true one. The world-famous Planchas de Plata mine is located in the same district just across the line in Sonora. There hundreds of small nuggets were picked up from the surface, and one piece of native silver weighing 1,700 pounds was found.

The kaolin outcroppings in the Pajarita country would seem to offer a clue to the origin of the native silver found on the surface. The padres often mentioned having found virgin silver in veins of kaolin, or caliche as they called it. It is not unusual in the desert country to find bunches of rich ore near the surface, then a leached zone directly beneath. Many of the old Spanish workings were stopped in the leached zone instead of going on down to water level for the secondary enrichment.

To use a slang phrase, the Purisima Concepcion seems to be the "Pure Quill."



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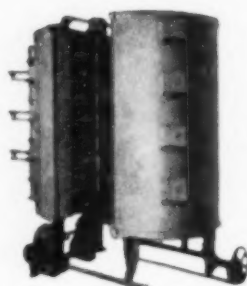


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STRAWS IN THE GOLDEN BREEZE

• It simply had to come. And it seems in-process-of-coming as this is writ (January 9—"deadline"). How's that? Higher price of gold? No—not yet. But—watch. What I'm barking about is that new 7½¢ nickel for the salvation of slot-machines and telephones and Coke-peddlers, etcetera. Also you.

• Almost two years ago this column discussed the 7½¢ jitney, then just abornin' in the cerebrum of a Long Beach citrus drink manufacturer. He had the right idea, and has stuck to it ever since. Now he's got Senator Downey primed (at this writing) to drop a bill in the Senate Hopper to create that coin. And we need other intermediate coins at the low end—one between the thin dime and the two-bit piece, for instance. It's elementary economics.

• Now . . . blow me down if this isn't a high-visibility straw in the Gold Wind. Hard-Money he-men are right on the job now. How's that? Well, on January 5 Washington high-brass confirmed a statement by Sir Stafford Cripps (cripes!) that the International Monetary Fund "is studying the \$35 per ounce official price of gold." How's that for a whole handful of straw in that wind?

• Back to that 7½¢ jitney: The daddy of the idea maintains that its coinage will save the buying public and the manufacturers and hucksters, each on their own sides, ZILLIONS of dollars. Brother, he's right. Think it over.

• Of course Johnny Snyder and other diehards in Washington vowed and vummed that Staff Cripps' statement, and the IMF move, were merely "a sop to South Africa." You all recall how South Africa had the intestinal fortitude a year or so ago to hike its own gold price up—this column and Editor Dorsh's column both riz up and cheered at the time, in the same issue. Remember?

• Well . . . for centuries (speaking conservatively) this column has slung a mean cudgel and rooted fortissimo for a horse-sense hike-up of the pegged price of gold, to match up with the universe-wide rise in the prices of everything used to mine gold (or to eat or to wear). The cudgel-slinging and the rooting will go on and on, like Tennyson's brook. Add your voice to it—make it a chorus. Make it a spate of letters to your senators and representatives—those guys whose salaries (RECENTLY RAISED ALONG WITH EVERYTHING ELSE BUT GOLD!) you and I pay.

• The world price of gold is as certain to be forced up by the Law of Supply and Demand (Snyder to the contrary notwithstanding) as . . . well, as death and taxes.

• Did you read Truman's "State of The Nation" report to the Congress? "State of Socialism", I call it! And if you perused it carefully, you could see that at least a fourth of it whooped it up about what the "State of The Union" CAN BE IN THE YEAR 2000 A.D. He wielded the baton while his imaginary symphony orchestra discoursed sweet harmonies to lull the savage breasts of tax-ridden . . . er, subjects. Yup, that message was a wow!

• Reverting the moment to Hard Money He-Men: Long-whiskered Frank Gimlett of Canon City, Colorado, made his annual trek to Washington to get the Nation back on silver and gold (pardon, gold and silver) instead of verdant paper currency. Frank's annual chats with members of the Congress contain somewhere near ten times as much economic horse-sense as did that State-of-The-Nation spiel . . . and they wouldn't have to be supercharged with horse-sense to measure to that ratio, either.

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MINING MEN AND THEIR ACTIVITIES

About men who are well known and prominent
in American metal mining circles

Walter B. Dalrymple, mining engineer with the U. S. Bureau of Mines, has been transferred from Vincennes, Indiana, to Des Moines, Iowa, to inspect Iowa coal mines.

Earl Faulkner has left the Berg Mining Company, Wrangell, Alaska, to start work on a hydraulic operation he has on Hall Creek, a tributary of Faulkner Creek, British Columbia, Canada.

Oliver M. Knode has succeeded W. L. Keady as president of the U. S. Gypsum Company, Chicago, Illinois. Knode was president during the period 1936 to 1942.

Harvey L. Tedrow succeeds the late Charles N. Bell on the Colorado State Mineral Resources Board.

O. A. Sundness of Duluth, Minnesota, manager of range mines for the Snyder Mining Company, was elected chairman of the Lake Superior Section of the American Chemical Society at a recent meeting at Hibbing. He replaces Ole Forsberg, retired.

William E. Berthold, Jr., resigned as assistant geologist for the Cleveland Cliffs Iron Company, Ishpeming, Michigan, and is now living at Chicago.

G. K. Eggleston has been appointed vice president in charge of manufacturing of Non-Ferrous Perma Mold, Inc., a newly formed corporation, and the Barnes Manufacturing Company of Mansfield, Ohio.

Thomas B. Hill, former state supervisor of mines for Washington, now chairman of the stockholders committee of the Kaaba Silver-Lead Mines, Inc., of Nighthawk, Washington, announced that, with the establishment of a new board of directors and officers, the company has resumed operations. Officers are A. W. Webster, Seattle, president; T. L. Cook, Sunnyside, vice president; and Lee B. Carroll, Nighthawk, secretary-treasurer and manager.

Roy R. Smith has been made head mining captain at the Cary mine of Pickands Mather and Company, Michigan. Harold L. Shiebler, superintendent at the Cary, is to have charge of the Newport mine, east of

Ironwood, and the Ironton near Bessemer. Russell L. Jose is assistant superintendent at the Ironton.

Landis E. Smith has been appointed deputy state mine inspector for the Idaho panhandle, covering both the Coeur d'Alene and Clark Fork mining districts. According to George McDowell, state mine inspector, the state statute provides for the position but Smith is the first to be appointed to it as no funds had been available heretofore to pay any salary.

Eugene M. Cramer, physical metallurgist, was elected by atomic scientists at Los Alamos, New Mexico, for service at the Los Alamos scientific laboratory. To take the position he has severed his connection with Washington State College at Pullman where he was a specialist on the staff of the industrial research division of the college's institute of technology.

A. Ben Shallet is to become manager for a Mexican mining company according to a report received. He is at present still working for the Car-



C. DONALD
DALLAS

was made a trustee recently of the Southwest Research Institute at San Antonio, Texas, according to Dr. Harold Vagstad, president. Dallas is chairman of the board of the eastern firm, Reverse Copper & Brass, Inc.

bonate and Bald Butte mines at Marysville, Montana.

W. Rex Storms who recently transferred from his position as supervising engineer of the U. S. Bureau of Mines Field office in Silver City, New Mexico, to chief of the Tucson Mining Branch, Minerals Division, has been replaced in Silver City by W. D. McMillan, who transferred from Austin, Texas.

Robert G. Glass, vice president and manager of operations for Geneva Steel Company, Geneva, Utah, has been made assistant to the president and will give up the manager of operations title to the newly appointed Loren J. Westhaver.

W. M. Archibald, president of the Nevada Monarch Mining Company, Spruce Mountain district, Elko County, Nevada, is at the mine to supervise drilling operations now under way. He lives in Canada.

L. W. Minton has been transferred from Bauxite, Arkansas, to Houston, Texas, as geological engineer for Al-



HOWARD L.
YOUNG

president of the American Zinc, Lead and Smelting Company, was re-elected president of the American Mining Congress, marking his seventeenth year in the position. He is a past president of the American Zinc Institute.

coa Mining Company. His address at Houston is 1727 Vassar Street.

Charles R. Passavant, Jr., is working for the Magma Copper Company, Superior, Arizona.

S. R. Dubravac, who several months ago was appointed by Governor Vail Pittman as acting manager of the basic magnesium plant at Henderson, Nevada, has become permanent manager according to a recent report from the governor. Dubravac succeeds John Mueller, member of the Colorado River compact commission.

Roy K. Dondoro is junior engineer for the Isbell Construction Company in connection with its stripping contract for the Ray Mines Division of the Kennecott Copper Corporation, Ray, Arizona. He had worked for Copper Canyon Mining Company, Battle Mountain, Nevada.

Robert W. Hoyer has been transferred from the Battle Mountain, Nevada, Division to the Natoma, California, Division of the Natomas Company, and is working with John J. James who is directing the dismantling, moving and reassembling of the company's large bucketline dredges. Hoyer is an engineer.

Gordon T. Brown has moved to 403 N. Third Avenue, Tucson, Arizona, and is chief engineer for the Theodore A. Dodge Enterprises.

K. N. Garard is at present at Moab, Utah, making mine examinations and estimates in preparation for a mill operation in that district. The proposed mill, he advises, will handle both vanadium and uranium, including the high lime ores common to the Colorado Plateau area.

Glennville A. Collins, who was in British Columbia all last summer doing exploration work for uranium, is at Santa Barbara, California, for the winter months. He is assisting in the formation of a new company to develop two showings of uranium found during the exploration.

M. L. Williams has been assigned to the Phoenix, Arizona, office of the Safety Branch, U. S. Bureau of Mines, succeeding Alan Sharp. For the past

Continued on page 53



ALVIN W.
MACKAY
is general manager of Sierra Madre Mining Company, a Washington corporation, which is operating a gold-silver mine near Mazatlan, Sinaloa, Mexico. Home office of the company is the Huston Building, Spokane, Washington.

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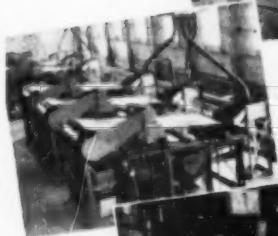


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(Left)



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presence of
tramp-iron.
(Right)



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GRAB SAMPLES—From the Mail

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Dear Sir:

I am a reader of your review and praise very much the WORLD MINING for its utility in the international mining field. I have read sometime ago the interesting article of Mr. Charles Will Wright on the foreign mines. The writer reported a point of President Truman's inaugural address which so said:

"President Truman suggested to aid the technicians and students from foreign countries to enable them to come to the United States to study our methods of research and production."

I was laureated by University of Bologna, Italy, in 1943, and have a great wish to become a completed engineer, but the manner and means is lacking in Italy. The phrase of your article has much interested me and I ask now of you the favour of writing to me and explaining the reported phrase.

I am very sorry for disturbing you, but I am an Italian who believes in your ECA and in the friendship of the U. S. A. for our poor Italy.

I have for three years been employed in the sulphur mines of Romazina, Italy, but I wish to improve my position even if I must go to foreign and far countries, or in undeveloped areas.

I pray you to excuse my bad English speech, but I am learning it since only two months. I thank you for your courtesy and hope that you will be so good to answer me and to aid a young man who wishes only to work.

Umberto Ardeni
Miniera di Perticara
Pesaro, Perticara, Italy

Turkish Coal Assisted by ECA

Dear Sir:

I receive regularly the WORLD MINING which gives a brief but fair view of most important events in the mining world.

Our coal district of Zonguldak on the Black Sea coast is apt to acquire great economic importance in the Near East, particularly after the realization of the new reorganization assisted by ECA. I would like to inquire whether you would be interested in a short article about our reorganization program with some illustrations. It might draw the attention of American manufacturers and enhance our relations to our mutual benefit.

Galip Ozen, E.M.
E. K. I. Erus
Zonguldak, Turkey

Marginal Recovery Methods Needed

Dear Sir:

I have immediately appreciated the valuable information given in your review, keeping the readers in touch with recent improvements in milling or mining practice. It is for that reason that I have entered a subscription to the MINING WORLD.

Our ore is a complex one and our flotation concentrates of copper, zinc and lead must be kept high grade and the recovery improved to maintain profits with declining metal prices.

The copy of the WORLD MINING you are sending to the mines of Boudoukha is circulated through the staff and note that

even the advertisements are not neglected as we are buying equipment in the U. S. to modernize our mill and mine.

R. Vieillard, General
Manager
Societe des Mines
de Boudoukha
16 Rue Le Peletier
Paris

Thank God for Somebody

Dear Sir:

After a considerable absence from home base I find your publications of WORLD MINING. Thank God somebody has taken interest in presenting the world's mining news in an attractive manner. You deserve congratulations.

After fifty years of reading the humdrum reporting of [other U. S. and London] publications, your presentation of the news is surely refreshing.

T. W. Mather
Independencia (Brena) 339
Lima, Peru

Spiral Concentration Unknown

Dear Sir:

I have during these last months received several copies of WORLD MINING, and I want to thank you for this remittance.

I found your Review of great interest and very instructive. I have particularly been interested by the article of last September on spiral concentration. I understand this new process for the concentration of fine ores has been designed and developed during the war, and of course, we Frenchmen here, could know nothing of it. I intend to write to the manufacturer for further information.

Another interesting presentation in your Review is the presentation of international news. It keeps your readers informed of what is going on all over the mining world.

Robert de Las Bouglisse, E.M.
President, Compagnie
Minière de la
Guinée Française
Paris, France

A Light in the Dark

Dear Sir:

I beg to express my sincere thanks to you for sending me personally as well as to our Mining Institute your MINING WORLD. It was the first overseas mining periodical since the surrender, and we, by your courtesy, are able to know the outdoor mining conditions hidden to us during the dark blank of the period.

Prof. E. Mikumo
Mining Institute of
Engineering
Kyoto University, Japan

Honduras Shows Promise

Dear Sir:

I wish to express my appreciation of the receipt of WORLD MINING and to compliment your organization on the idea of distributing such a fine paper. It is indeed an asset to the mining industry.

I feel that Honduras shows great promise of becoming a more extensive mining district and I will be very happy to pass on to you anything of interest for your WORLD MINING publication.

John R. Ohle
P. O. Box 195
Tegucigalpa, D. C.
Honduras, C. A.

FROM EMBATTLED FORMOSA

Formosans are avid readers of the export edition of MINING WORLD, as witnessed by the reproduction below of W. L. Ziegler's recent article on Mine Mechanization which appeared in the island's mining and metallurgical publication.

譯 述

選 礦 之 進 步

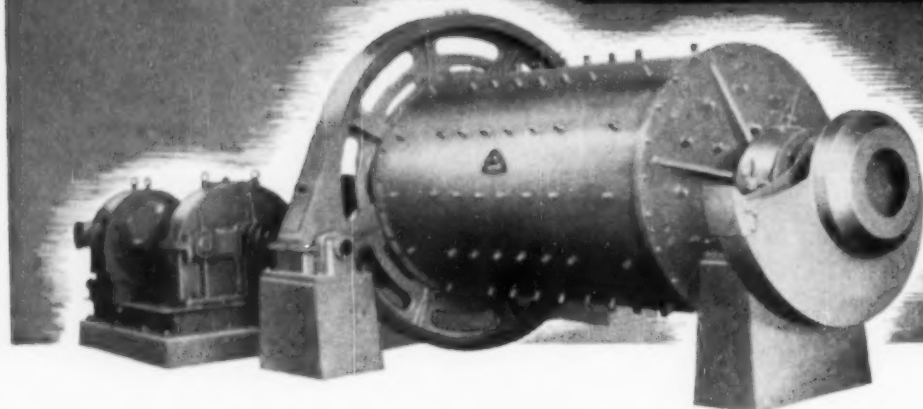
林 澧 如 譯 述

W. L. Ziegler 著，原載一九四八年十二月號 World Mining

手工法為最原始之選礦方法。中世紀時，中亞之礦人發現以毛繩之使重裝鉤，在水中上下移動，可使鉤端重裝；至是始有旋重選礦法 (Jiggling)。當時，選礦方法可分為兩步：最先將鉤端打碎，選出較粗之礦塊；次為以毛繩之鉤，將出較粗之礦塊，而以旋重選礦法處理之。

選礦法中之重力富集法 (Gravity Concentration)，由來已久。後來，此法漸趨改良，鉤端之鉤端與旋重選礦法應用動力，使選礦方法大有改進。然初時重力選礦法僅能處理較粗之礦砂，對於鉤端之礦小者，尚未能予以處理。直至十九世紀末葉，圓洗桌 (Buddle or Round Table) 發明以後，此項選礦砂之處理問題始有進展。隨之處理粗砂用之旋重選礦法之改良桌 (Reciprocating or Bumping Table) 及處理尾礦用之洗礦帶 (Rubber Belt Vanner) 相繼發明。至一九一〇年，圓洗桌之工作已完全為兩項新發明之機器所代替。是時，洗礦帶選礦，搖洗桌及洗礦帶與大圓洗礦帶，圓心碎礦機，絲網碎礦機，磁鐵吸礦，智利網已成為主要之選礦工具。其後，此類機器尚有許多專利之改良，數經改變，而今日應用者僅為數種最佳之機器而止。

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WORLD MINING

The International Department of MINING WORLD

SAN FRANCISCO, CALIFORNIA

FEBRUARY, 1950

INTERNATIONAL PANORAMA

WASHINGTON, D. C.—Putting Marshall Plan aid to Europe at \$7,405,994,000, as of late November, it was pointed out that large sums had been expended for development of non-metallic and metal mines and for mining and processing machinery of all sorts.

NEW YORK—\$3,600,000 in Marshall Plan funds was awarded Newmont Mining Corporation for use in developing lead and zinc mines in French Morocco.

PHILIPPINES—Calling in gold in all forms but jewelry, the Central Bank of the Philippines made ready to enforce a government decree that banned free domestic trade in gold. Export of gold was banned on December 9. Penalty to surrender gold to the Central Bank was set at a maximum fine of 10,000 pesos (\$5,000).

TEXAS—The U. S. government's Texas City tin smelter is faced with the possible need of subsidies if it is to continue to operate in the face of U. S. manufacturers buying tin where they wish. Recent moves have tumbled the price of tin from \$1.03 to about 78 cents a pound.

KOREA—ECA grants of \$12,643,000 to Korea included one item of \$11,313,000 that is to be used for nitrogenous fertilizers. All fertilizer will be supplied from Canada and the U. S. with the Bureau of Federal Supply making the purchases.

OHIO—According to figures released at Cleveland, iron ore movements on the Great Lakes was down sharply from 1948. Although shipments were down approximately 13,000,000 tons to about 69,400,000 tons for the year, the winter stockpile was some 3,000,000 tons larger than that of the previous year.

UTAH—Scheduled for completion in late spring or early summer is the new copper refinery development of the Kennecott Copper Corporation and the American Smelting and Refining Company that will have a capacity of 12,000 tons of refined copper monthly in ingot and wire bars. The Kennecott unit will cost an estimated \$16,000,000 and the A. S. & R. plant \$3,000,000.

YUGOSLAVIA—Reports indicate that rich workable deposits of bauxite, manganese and lead-zinc have been discovered in Montenegro. According to the official news agency, Tanjug, the bauxite deposits are described as totalling "tens of millions" of tons.

NORTHERN RHODESIA—Ore reserves of the Mufulira Copper Mines, Inc., at the end of the accounting year, were estimated at 129,000,000 tons assaying 3.85 percent copper.

BOLIVIA—Charged with mispending funds, the Banco Minero de Bolivia's board suspended its general manager. A few days later the government suspended the board for the same reason.

CHRISTMAS ISLAND—The governments of New Zealand and Australia have acquired the assets of the Christmas Island Phosphate Company, Ltd., on deposits estimated at between 15,000,000 and 30,000,000 tons for the sum of £1,892,000. Recently ratified between the two governments was a bill to acquire the phosphate rights on the island and a commission has been set up to head up the enterprise for the two principals.

NEW YORK—Imports of lead into the United States totalled over 400,000 tons during 1949 compared with 340,000 tons in 1948. This is the greatest imported tonnage in history and it is pointed out that U. S. producers must use more aggressive selling methods and investigate a wider market for the metal.

NEW YORK—An outstanding development of 1949 was the revival of European markets for the platinum group metals, attributed to reconstruction and new uses by the makers of acid and other chemicals, electrical apparatus and rayon.

SOUTH AFRICA—The merger of two of the Union's platinum producers—Rustenburg Platinum and Union Platinum—gives a combined milling capacity of about 62,500 tons of ore monthly and makes the firm preeminent among the world's platinum producers.

MALAYA—British mining machinery manufacturers are concerned increasingly at the rapid strides being made by American manufacturers in the Malayan market.

LONDON—Messina (Transvaal) Development, South Africa's largest copper producer, is moving from London to South Africa to escape the penal taxation on mining enterprises.

NEW YORK—Primary aluminum production for the U. S. during 1949 is estimated at 600,000 tons of which 125,000 tons was produced by the Kaiser Aluminum & Chemical Corporation.

CHILE—The price of nitrate fertilizer has been cut \$3 a ton to \$41.75 f.a.s.

LONDON—According to Chancellor of the Exchequer Cripps, reserves of gold and dollars reached \$1,668,000,000 at the year's end compared with \$1,425,000,000 at the end of the third quarter of the year.

AUSTRALIA—Rumors are circulating that the Australian pound will be appreciated against the dollar which will result in a fall in price for Australian gold. This bit of information comes to light with the advent of the Menzies government.

INDIA—Manganese and mica prices are to be raised to the pre-devaluation dollar price level.

Moroccan Mine to Start \$14,000,000 Program

At Boubeker, French Morocco, a large modernization and expansion program has been mapped out for the lead-zinc mines owned by the Societe de Mines de Zellidja. The development will be carried out jointly by Zellidja and the Newmont Mining Corporation of New York which has had an interest in the Moroccan company since 1946. Zellidja will spend about 3,670,000 francs (\$10,500,000) of its own money and Newmont will spend about \$3,600,000 in Marshall Plan funds obtained recently by signing a contract with the Economic Cooperation Administration.

The development will include the construction of a mill, including a crushing plant and the installation of grading and flotation facilities. Annual production of lead will be increased to 85,000 tons, and of zinc to 120,000 tons.

The purpose is to supply at least 70 percent of France's future lead requirements and about 50 percent of her zinc requirements, and to add to the U. S. stockpile by repaying the ECA in shipments of the two metals during the next seven years.

Canadian Aluminum Firm Enters African Field

Reports say that the Aluminum Company of Canada has acquired a share interest in West-African Aluminum, Ltd., which is located in the Gold Coast colony and is a subsidiary of Anglo-Transvaal Consolidated Investment Company, Ltd. Since the building of an aluminum refinery in the sterling area is contemplated in order to save dollars, the entering of Alcan into the scene is said to mean that construction will be in West Africa. Cost estimates for the smelter run to £100,000,000.

West-African Aluminum owns concessions on bauxite properties, hydro-electric sites and other rights in the Gold Coast colony. Further investigations are to be carried out by the British Government at the Gold Coast in the Volta River region to determine the best site, and some controversy is expected as some interests wish to establish such a plant in Borneo. At any rate, Britain, which must pay dollars for the aluminum it gets mainly from Canada, will undoubtedly push the project as fast as

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possible and will favor the Gold Coast.

As Aluminum Company of Canada and the Aluminum Corporation of America are the biggest producers of aluminum in the world, the project takes on great importance.

Long Range Plans Given
For Canadian Iron Ore

A group of American steel companies have taken an option to participate with Canadian interests in the development of Quebec and Labrador iron ore. Jules R. Timmins has announced. He is president of the Labrador Mining and Exploration Company, Ltd., and of Hollinger North Shore Exploration Company, Ltd., which have been conducting the exploratory work for the past few years.

A new Canadian company, Hollinger-Hanna, Ltd., will manage the operations, and an American company, the Iron Ore Company of Canada, in which the steel companies will participate with the Canadian interests, will finance the undertaking.

Mr. Timmins stated that the Iron Ore Company has been given the right to lease a large part of the iron ore reserves in the concessions, but that the Canadian companies were retaining ample reserves to supply the requirements of the steel business of Canada, as well as to anticipate the exportation of iron ore to England and other European countries in the future.

The participants in the venture include Labrador Mining, Hollinger North Shore and Hollinger Consolidated Gold Mines, Ltd., from Canada, and Republic Steel Corporation, Armco Steel Corporation, National Steel Corporation, Wheeling Steel Corporation, the Youngstown Sheet & Tube Company and the Hanna Coal & Ore Corporation from the United States.

A great deal of additional exploratory development and engineering work is yet to be done, so that at least another year or two will pass before any start can be made on construction.

Future plans include the construction of 360 miles of railroad from the mines to Seven Islands on the St. Lawrence River, terminal and port facilities at Seven Islands, the development of the mining properties, and of electrical power and building the communities required for the eventual production and transportation of 10 million tons of iron ore a year. A large investment of American dollars in Canada is required and the employment of many Canadians over a long period of years in building, equipping and operating the several properties. The project will become

one of the important mining ventures in Canada.

While no accurate estimates of the cost of the project are available, the size of the undertaking is such that from \$150,000,000 to \$200,000,000 may be required, Mr. Timmins said.

Mine Supplier Signs First
ECA Guaranty Contract

Signing of the first industrial guaranty contract under the more liberal terms of the amended Economic Cooperation Act was announced recently by the Economic Cooperation Administration both here and in London.

Thomas A. Edison, Inc., of West Orange, N. J., received the guaranty under which it will be able to convert into dollars its foreign currency receipts received from an additional investment of \$100,000 in its wholly owned subsidiary, Thomas A. Edison, Ltd., London, England. The face amount of the guaranty is \$175,000 in accordance with ECA regulations permitting the guaranty to cover 175 percent of the amount invested under the revised provisions of the Act.

The \$100,000 investment is in the form of \$40,000 invested in capital stock in February 1949 and \$60,000 which is to be invested by February 1950.

The subsidiary's activities have been expanded and it is now in full production making a miner's electrical safety cap lamp similar to those manufactured by the American company. Since the end of the war the parent company has invested an additional \$80,000 in its British subsidiary without guaranty.

The parent company has been selling mine lamps in recent years to the sterling area, principally South Africa and Australia, at an annual rate of several hundred thousand dollars. The output of the British plant will henceforth supply those markets at a substantial dollar saving to the sterling area.

The contract was signed by the Export-Import Bank of Washington as Agent for ECA.

U. S. Authorizes Sale of
Uranium Metal Rods

The production and sale of 200 lbs. of metallic uranium has been okayed by the United States Atomic Energy Commission. Sale will be to qualified licensees only. The price is fixed at \$50 per lb.

The metal will be of high purity and will be available in four-inch rods which will weigh around one-fourth of a pound. The report advised that the grade to be sold cannot be used for atomic energy.

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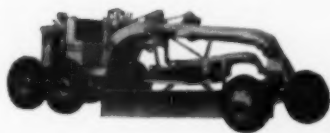
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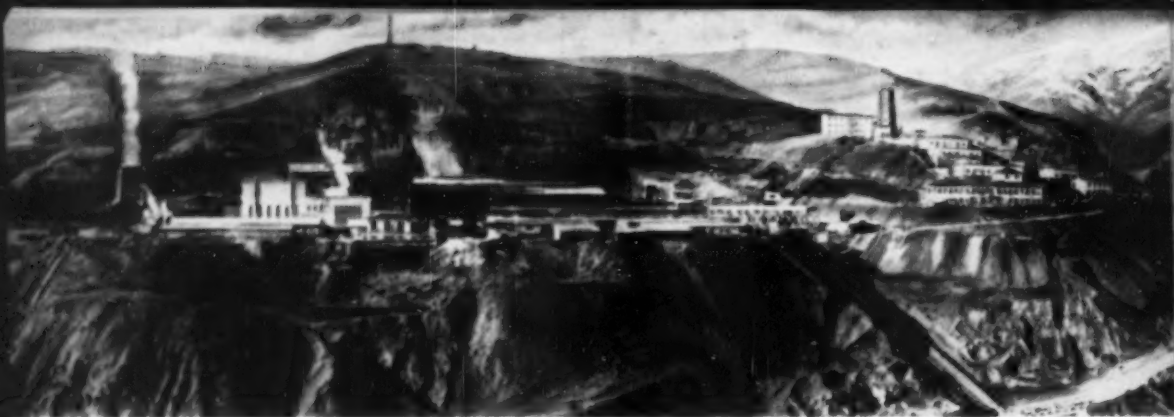
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A general view of the Ergani copper mine showing the office buildings, power plant and other surface installations; the smelter is behind the hill. The Ergani mine is an open pit, mining being carried out by a regular benching method. Present rated capacity of the smelter is 15,000 tons of blister copper yearly.

LIGHT ON TURKEY'S MINERALS

The record of advance in mineral technology established by Turkey since the end of the war is an important and noteworthy accomplishment

This authoritative report on Turkey's present mineral industry by WORLD MINING'S correspondent in Ankara sets to right a number of rather misleading items that have appeared in the mining and technical press during the last two years. As set forth below, Turkey, since 1935, has completed a systematized geological survey and at this date a geological map of the country has been completed on a scale of 1:800,000, with larger scale maps in preparation, no small task when it is considered that the area of Turkey approaches 295,000 square miles, larger than Texas by nearly 30,000 square miles. Other facts are brought out under each subheading and indicates the many developments accomplished in the post-war years.—Ed.

In these uneasy post-war years, the importance of adequate and up-to-date information on the mineral resources of the strategically located Republic of Turkey which is one of the E.C.A. countries, is obvious.

Before 1935 no systematic geological survey or mining exploration and research had been done in Turkey, nor was a program adopted for the large scale exploitation of the then known mineral deposits. In that year, however, the Turkish Government took the necessary steps to put the country's mineral industry on its feet.

During the period between 1935 and 1948 all parts of Turkey were systematically explored for their

By Falih Ergunalp

Mining Engineer
M.T.A. Institute
Ankara, Turkey

mineral reserves. Many new deposits were discovered and several outstanding properties were put into operation. Today, adequate knowledge on the country's mineral wealth, as based on the work of hundreds of well trained mining engineers and geologists, is at hand and a great number of deposits already are developed.

M.T.A. Institute

The M.T.A. Institute (the Mineral Research and Exploration Institute of Turkey) was established by the Government in 1935 to undertake the geological survey and the mineral exploration of the country, to evaluate the reserves of the exploitable deposits and to carry out laboratory investigations for the mineral industry. Since its foundation, this Government establishment has steadily grown in proportion to its many achievements in the various phases of the country's mineral development program. Today its organization includes the following technical departments:

1. Department of Oil Development:
 - (a) Petroleum geology and paleontology.
 - (b) Geophysical survey.
 - (c) Oil well drilling.
 - (d) Operation of the Raman oil field.
 - (e) Operation of the oil refinery at Raman.

2. Department of Geological and Mineral Survey and Research.

- (a) Geological Survey (including geological mapping, preparation of profiles, and paleontology.)
- (b) Prospecting, mining exploration and development.
- (c) Study of Carboniferous sediments (evaluation of coal reserves.)
- (d) Exploratory drilling in connection with mining and engineering geology.
- (e) Laboratory testing and research (mineral dressing, mineralogical and petrographic examinations, analytical work, ceramic testing and metallurgical testing.)
- (f) Topographic Survey (surface and underground mapping.)

The Institute is managed by a Director General (at present, Husan R. Berent, a graduate of the New Mexico School of Mines) and employs a large number of mining engineers and geologists trained in Europe and the United States. A brief description of the work done by the various departments of the M.T.A. Institute in its thirteen years of activity follows:

Geologic Mapping

A 1:800,000 scale geological map of Turkey has been completed. 44 percent of the total area of the country has been covered in a 1:100,000 scale geological map, and a 1:500,000 scale map is also under preparation. The general geology of an area of 330,000 square kilometers has been studied. Data on the mining geology of an area

INTERNATIONAL

of 200,000 square kilometers were obtained. Petroleum geologists have covered 120,454 square kilometers and discovered many promising regions for oil exploration. 20,000 square kilometers was studied for earthquake activities, dam sites and other problems of engineering geology and 14,870 fossil determinations were made by the paleontology department. Detailed geological surveys of several mining districts, particularly the Zonguldak coal basin, were made. Three hundred thirty articles and 20 books dealing with local geological problems have been published since 1935.

Prospecting Active

Within 13 years a total of 5,400 mineral occurrences was examined and classified according to economic values. Fifty-seven deposits were found to have sufficient reserves to justify large scale mining operations and 513 others proved to be exploitable economically by small mine operators.

Geophysical Survey

The geophysical survey crews of the M.T.A. Institute employing electrical, magnetic, gravimetric and seismic methods have been particularly active in recent years. Their work was supplemented by that of the United Geophysical Company of California. An area of 3,800 square kilometers was covered in connection with geological structure determinations in petroleum exploration. Also reserves of 55 mineral deposits were examined by geophysical methods. Altogether, 31 magnetometric, 219 electrical, 1,418 seismic and 2,528 gravimetric measurements were made.

TABLE NO. 1

| Name of mine | Lignite reserves million tons | Thickness of seams meters |
|--------------|-------------------------------|---------------------------|
| Agaceli | 50 | 0.65- 3.50 |
| Seyitomer | 90 | 4.00-22.00 |
| Tavsanli | 37 | 0.50- 7.00 |
| Degirimsaz | 1 | 1.70- 4.00 |
| Soma | 20 | 5.00-20.00 |
| Celtek | 1 | 2.00- 4.00 |
| Balkaya | 10 | 0.60- 1.90 |
| Soke | 10 | 1.00- 1.60 |

Oil Well Drilling

More than 22,000 meters of drilling was done in 50 oil exploration wells. The deepest well drilled has reached 1,510 meters. Economic petroleum was first encountered in 1948, in the Raman area where newer wells are now being drilled. In this work the M.T.A. Institute is being assisted by Drilleco, an American contracting firm.

Laboratory Work

More than 15,000 mineralogical and petrographic determinations were made in the laboratories of the Institute. Samples assayed in the analytical laboratory totalled 33,600. Concentration tests were carried out on 388 different ore samples, and 420 ceramic tests were conducted on refractory raw materials.

Exploration and Development

The total lengths of exploratory drilling done reached 1,700 meters in coal mines and 15,000 meters in lignite and metal mines and 25,000 meters of adits and drifts. 1,600 meters of inclined shafts and 3,800 meters of trenches were made. Various scale topographic maps of mining districts were prepared covering a total area

of 1,041,000 acres. Thirty-six thousand meters of mine development drifts were surveyed. An area of 323,000 acres was mapped by aerial photography. The mines developed by the M.T.A. Institute and transferred to Eti Bank for exploitation, are:

Divrik iron mine.

Guleman and Fethiye chromite mines.

Ergani and Murgul copper mines. Keban and Bolkardag lead-zinc mines.

Turhal antimony mine.

Tavsanli, Seyitomer, Balkaya, and Agaceli lignite mines.

The work of the M.T.A. Institute thus constitutes the first phase of the development of a modern mining and petroleum industry in Turkey by furnishing reliable scientific data on the mineral potentialities of the country.

A great variety of minerals occur in Turkey in deposits of economic importance. A short account of the major deposits is given in the following paragraphs.

Petroleum and Coal

Presence of oil in Turkey has been suspected for generations. First explorations were conducted in 1887. Search for petroleum in its modern sense was started in 1933. Several suitable structures were discovered in various parts of the country and wells were drilled, the first petroleum being struck in 1948 at Raman. Up to the present, eight deep wells have been drilled at Raman, two of which are now producing oil at a depth of 1,300 meters. The present production of about 120 tons per day is refined in a locally manufactured topping

DISTRIBUTION OF THE PRINCIPAL MINERAL DEPOSITS IN TURKEY



TABLE NO. 2

| Mineral | Number of commercial deposits | Outstanding properties | Known reserves tons |
|------------|-------------------------------|-------------------------|---------------------|
| Alunite | 3 | Foca (Izmir) | 4,000,000 |
| Antimony | 11 | Turhal | 17,000 |
| Asbestos | 4 | Mihalıcık (Eskişehir) | |
| Asphalt | 7 | Harbol | 10,000,000 |
| Bauxite | 3 | Akseki (Antalya) | 700,000 |
| Boracite | 1 | Sultancılar (Balıkesir) | |
| Diatomite | 3 | Geyikçili (Kayseri) | 21,000,000 |
| Emery | 27 | Kozgac (Mugla) | 73,000,000 |
| Kaolin | 3 | Arnavutköy (İstanbul) | 1,500,000 |
| Magnetite | 13 | Murgi (Eskişehir) | |
| Manganese | 6 | Gökçeova & Hops | 150,000 |
| Meerschaum | 1 region | Sepetci (Eskişehir) | |
| Mercury | 7 | Karaburun & Halikoy | 1,100,000 |
| Sulphur | 2 | Kestiborlu | 400,000 |

plant. A great future for the Raman oil field is predicted. Another oil field is likely to be developed in the Adana region where geophysical exploration gave promising results.

The productive Carboniferous sediments occur in Turkey only in the area between Ereğli and İnebolu, along a belt 10-50 kilometers wide on the Black Sea coast. This is the only region where bituminous coal is found in Turkey. In the Western part of this region, under a surface extension of 130 square kilometers, 500,000,000 tons of proven reserves of coal are known to exist. Possible reserves are estimated 3,000,000,000 tons. Presently, coal is mined in 14 mines which are all government-owned and operated under one management. The deepest shaft in these mines is 658 meters. Six washing plants are in operation.

Lignite or brown coal is found in nearly all parts of Turkey; more than 700 occurrences are known. Commercial deposits are classified into three groups. These are:

- Deposits with more than 1,000,000 tons reserves each. There are eight deposits; these are given in Table No. 1.
- Deposits with more than 25,000 tons reserves each. There are 25 such deposits.
- Small deposits with 10,000-25,000 tons reserves each of which 22 are known.

Three lignite mines in Western Anatolia, which are owned and operated by Eti Bank, yield about three-quarters of the total production in the country. These are Tavşanlı, Döğürmen and Soma.

Copper Industry

The outstanding copper deposits are: Ergani, Murgul, Kuvarshan and Kure. Other occurrences also are known and are in exploration or development stages. The pyritic orebody at Ergani Mine contains a proved reserve of 5,316,000 tons of ore with an average grade of 6 percent copper. Regular production of blister

and refined copper at Ergani started in 1939, when a smelter was built at the mine. Since then this mine has been producing continuously, reaching an annual capacity of 15,000 tons of blister copper in later years. At present a flotation plant is approaching completion at Ergani.

The Murgul Mine, with 7,000,000 tons reserves is now being developed. A 1,500-ton per day flotation plant is reported to be completed and the smelter is being erected. Production is scheduled to start within a short time. The ore contains 2.75 percent copper. The output of the smelter will be trucked to the nearby Black Sea coast.

The Kuvarshan orebody has been mined from 1915 to 1944 and is now exhausted. The copper deposit at Kure has 1,600,000 tons of proved reserves with a grade of 2 percent copper. This mine is partially developed but its exploitation is not yet undertaken.

Chromite

In chromite mining Turkey is one of the leading countries in the world.

Turkish production of chrome ore in 1948 (262,469 tons) was second only to that of U.S.S.R. This mineral occurs in lenses and veins of widely varying sizes, and is found practically in all parts of Asia Minor where ophiolitic rocks occur. Orebodies are always found in serpentine, near the surface.

Three hundred forty chromite occurrences have been examined by the M.T.A. Institute. Of these, 32 were found to have large reserves of ore and to warrant large scale operations to be conducted by the Government; 71 others proved to be exploitable on a smaller scale by private enterprise.

Important deposits are in the Provinces of Elazığ, Antep, Hatay, Mugla, Bursa, Eskişehir, Kutahya and Denizli. The Guleman mine, owned by Eti Bank, is the largest producer (136,000 tons in 1948), and has more than 1,000,000 tons of ore reserves. A concentrator consisting of jigs and shaking tables is approaching completion at this property.

Five other major companies and an ever increasing number of small operators supply the remainder of the total chrome ore output of Turkey. In 1948, 53 different deposits were mined. Most of the ores are metallurgical grade with more than 48 percent Cr₂O₃ content.

Iron Ore

In order to supply the ore required by the country's iron and steel industry, 467 occurrences have been examined. Twelve small deposits and two large ones were discovered. The two important iron mines are at Divrik (Sivas) and Camdag (Kocaeli). The Divrik mine, which has been in operation since 1938, has 35,000,000 tons of proved reserves consisting of magnetite ore with 65

Continued on Page 51

TABLE NO. 3
Annual Production of Minerals Mined in Turkey

| Mineral | Production in 1947 Metric Tons | Production in 1948 Metric Tons |
|------------------|-----------------------------------|-----------------------------------|
| Antimony | 233 | 400 |
| Arsenic | 1,500 | |
| Asbestos | 36 | 203 |
| Bituminous Coal | 2,442,662 | 2,418,068 |
| Boracite | 3,608 | 5,314 |
| Chromite | 117,975 | 262,469 |
| Copper (Blister) | 10,075 | 10,979 |
| Emery | 12,094 | 6,905 |
| Iron Ore | 144,909 | 185,434 |
| Lead Ore | 2,036 | 81 |
| Lead-Silver Ore | 40 | |
| Lead-Zinc Ore | 1,627 | 8,176 |
| Lignite | 819,379 | 995,452 |
| Magnetite | 860 | 3,408 |
| Manganese Ore | 4,633 | 5,527 |
| Meerschaum | 178 boxes (a) | 289 boxes |
| Mercury | 98 flasks | 27 flasks |
| Pyrite | 5,000 | |
| Sulphur | 2,662 | 2,579 |

(a) Boxes of 35 Kg. each

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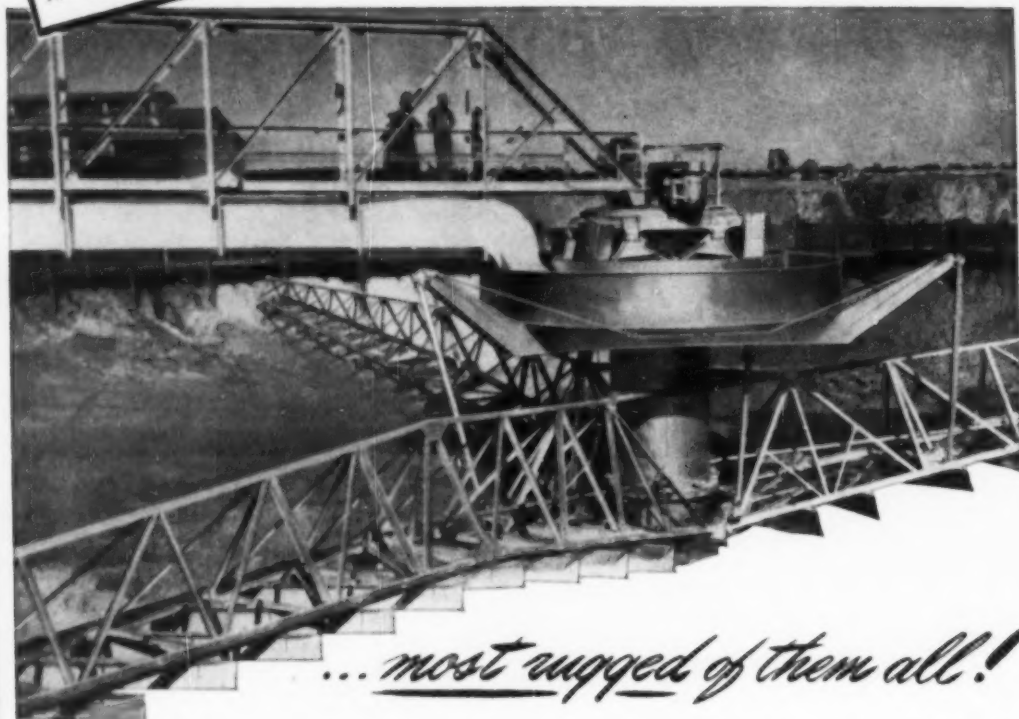
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RESEARCH — ENGINEERING — EQUIPMENT

Ore dressing plant of the Longyear mine, Hibbing, Minnesota. Shown are (from left to right) the crushing plant, the ore pocket, and the washing plant. This plant will handle about 800,000 tons of ore during the next open season.



By E. S. Tillinghast

Mining World Correspondent
Hibbing, Minnesota

HIGHLY FLEXIBLE BENEFICIATION PLANT HANDLES MESABI ORE SUCCESSFULLY

The Longyear Mine, east of Hibbing, Minnesota, is operated by the Inter-State Iron Company. It was partially stripped by Butler Brothers for the Inter-State people about thirty-five years ago. Except for one cargo of ore shipped during that time, it remained idle until 1943 when it was reopened as a truck operation.

Ralph O. Brandon was the superintendent in charge from 1943 to October, 1946, when he was transferred to the Hill-Annex mine at Calumet, Minnesota, and was succeeded at the Longyear by John F. Linden, who had been assistant superintendent at the Hill-Annex. Grover E. LeVreque is vice-president of the Inter-State Iron Company and Harry F. Kullberg is general superintendent, both being at the Virginia headquarters of the company. During the past year the Inter-State has been quite active in adding to its iron ore reserves.

For the four years 1944 to 1947 inclusive, the Longyear mine shipped 1,765,965 tons and the schedule for 1948 calls for about 800,000 tons.

Plant Construction Started

Late in 1946, work was begun on the construction of a washing plant to treat the lower grade ore that it had been necessary to stock-pile as it was encountered in the pit. The plant was completed in time to handle crude ore during September, 1947, and has greatly facilitated the mine's production by making it possible to concentrate and ship the wash ore that it had previously been necessary to move and stockpile.

The washing plant is integrated with the old crushing and screening plant. All the ore, therefore, is first crushed and screened, whether wash ore or direct shipping.

Ore is hauled from the pit by sixteen yard trailer trucks that dump into an 85-ton capacity pocket. From the pocket it is carried by a 4 x 19" pan feeder to a 6 x 12" screen with 6 x 7" openings. The material scalped in this screen goes directly to a rock pocket which is provided with a No. 8 Ross feeder for loading the rock into trucks.

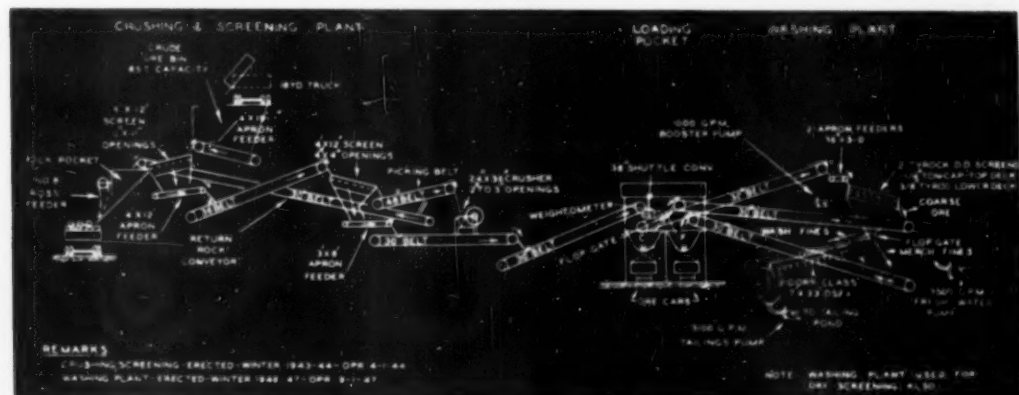
The undersize is transferred by a 4 x 12" apron feeder to a 36" belt that, in turn, conveys it to a 4 x 12" Robbins screen with 4 x 4" openings. Oversize from this screen goes over a 48" picking belt, the rejected chunks being returned to the rock pocket, already referred to, by a 30" belt. The undersize from the Robbins screen is taken by a 3 x 6" apron feeder to a 30" belt conveyor (that we might designate for the moment as belt A).

The picking belt ore is passed through a 24 x 36" jaw crusher set for about a 3" opening, from which it feeds directly to belt A. The combined ores on belt A are then dropped on a second 30" belt (B) which, when direct shipping ore is being handled, raises them to railroad cars, through a pocket, ready for shipment.

Two Classes of Ore

The ore that it is necessary to carry on to the top of the washing plant is of two classes: (1) that which requires washing to make a suitable product and (2) that which is direct shipping as to chemical analysis but

Flow sheet of the Inter-State Iron Company's Longyear mine crushing, screening, and washing plant. This is one of the most flexible ore dressing plants in the iron country.



is to be dry screened to separate the fines from the coarse in order to provide a better structure for the Pittsburgh furnaces—a point about which the Jones & Laughlin Steel Corporation, the parent company, has always been very particular.

When either of these two classes of ore is being mined, the discharge from the 30" belt (B), instead of unloading into railroad cars, is diverted to a 36" shuttle conveyor that deposits it on a 30" belt leading over a weighometer to the top of the washing plant.

Leaving this 30" belt, the ore stream is split to two 36" x 5' feeders that carry it to two double deck 5 x 14' screens. The top deck has 1 x 2" openings on the upper one-third portion and 3/4" square openings on the lower two-thirds.

Screens Differ

The lower deck uses different screens for dry screening and for washing. For dry screening, the slots are 1/2 x 1", with slots parallel to the flow of ore, while for washing they are 176 x 3/4". When dry screening, the oversize from both decks goes to coarse product railroad cars over a 30" conveyor. The undersize, carried over a similar conveyor, is lifted to the railroad cars, which are packed with hay to prevent loss through the doors, for fines. This completes the dry screening operation. The only beneficiation received by this dry screened ore is that obtained by removing the rock as it passes over the picking belt. The purpose, as stated, is to separate fines from coarse to improve the structure. The fines are sintered at the furnaces. An average of about 45 percent of the dry screened ore is removed as fines.

Wash Ore Treatment

When wash ore is being treated, a flop gate under the double deck screens is opened and the fines flow to two Dorr 7 x 33' rake classifiers. These discharge their product to a 30" belt which raises it to the fines railroad cars. Coarse ore cars and those for fines are on separate tracks. Fines in wash ore average about 40 percent of total weight.

Tailings from the classifiers are pumped by a 3,100 gpm. pump to the tailings basin. Because of cramped surface conditions, this is located on top of a dirt dump, some 60' above ground level. The overflow from the basin is returned to the fresh water pond near the plant.

The plant, it will be seen, is a three way proposition:

1. For direct shipping ore that is simply crushed and screened and passed over a picking belt.
2. For ore that is treated as above and, in addition, screen on the double deck screens to remove the fines.
3. For ore that, after the double deck screening, is washed by the rake classifiers.

This makes the plant a very flexible one and enables it to handle, satisfactorily, almost any ore contained in the pit.



DONALD H. McLAUGHLIN has been elected president of the American Institute of Mining and Metallurgical Engineers for 1950. He is president of the Homestake Mining Company, Lead, South Dakota. Two vice presidents were also elected: Andrew Fletcher, who is president of St. Joseph Lead Company, New York, and Robert W. Thomas, who is general manager of Nevada Consolidated Copper Corporation, Ray, Arizona. Five new directors elected were: Harold Decker, assistant manager of Pan American Production Company and Pan American Gas Company, Houston, Texas; Francis B. Foley, superintendent of research for the Midvale Company, Philadelphia; E. C. Meagher, treasurer of Texas Gulf Sulphur Company, New York; Gail F. Moulton, geologist for the department of Petroleum Economics, The Chase National Bank, New York; and Howard I. Young, president of American Zinc, Lead & Smelting Company, St. Louis, Missouri.

Holland Assists U. S. in Strategic Stockpiling

The purchase of 15,000 carats of industrial diamonds from Holland for the United States Government's stockpile was announced today by the Economic Cooperation Administration at Washington, D. C., and The Hague.

The diamonds were purchased with funds from the special ECA counter-part account in The Netherlands. Ninety-five percent of the counter-part account is used for recovery projects in The Netherlands and five percent is set aside for administration of the Marshall Plan in Holland and for purchases of materials needed by the United States.

The diamond sale to the United States is the latest of a series of such sales whereby the Dutch Government has assisted the United States in obtaining important commodities for its stockpile. Next to the United Kingdom, the Netherlands has supplied the largest amount of such materials to the United States among all countries participating in the Marshall Plan.

The purchase was made through normal trade channels in Amsterdam, diamond center of the world, where the diamonds were assorted, sized and classified. They have been sent to the United States where they will be inspected by a government representative and then placed in the stockpile for use in many major industries.

Idarado to Extend Old Meldrum Tunnel

Idarado Mining Company, Ouray, Colorado, has begun development of the Meldrum Tunnel, which will be extended to cross the Argentine vein bearing values in zinc, lead, gold and silver. Fred Wise, manager of Idarado, said power lines are now being constructed to the tunnel portal and road improvements are underway.

The tunnel was started 50 years ago and was to have joined the towns of Pandora and Ironton by cutting four-and-one-half miles through the mountains. Andrew Meldrum, originator of the project, intended to use the tunnel for mining, transportation and drainage. He had run the bore a total of 3,300', 2,500' on the Pandora side and 800' on the Ironton side, when backers withdrew their support and the project was abandoned.

Idarado will drive half a mile to reach the Argentine vein and does not expect to continue the entire four-and-one-half miles of the original plan.

Expansion Planned by Venezuelan Mine

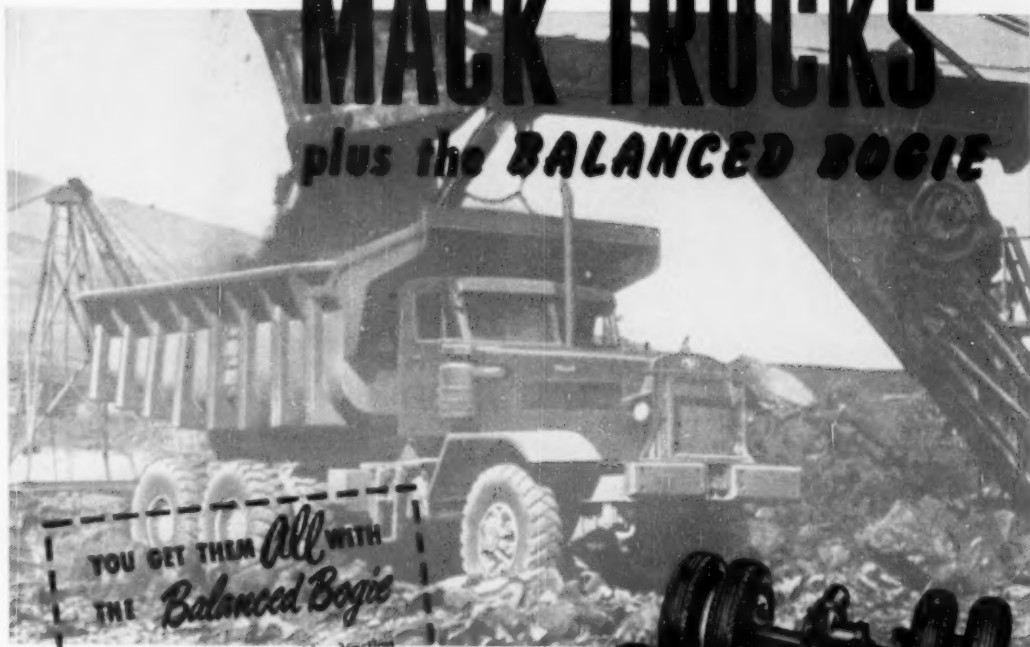
A two-year modernization and mechanization program is to start at Guayana Mines, Ltd.'s gold property near El Peru, Bolivar, Venezuela. The mine's milling rate will be increased by 50 percent, a heavier power line will be installed in some sections and improvements will be made in the diesel generating plant to provide for 4,000 hp. Recent estimates of reserves allow sufficient ore for two to three years at a 600-ton per day mill rate.

Control of the company is held by several Canadian firms: Frohisher, Ltd., La Luz Mines and Ventures, Ltd. The holdings cover a 50 sq. mi. area and lie in greenstone formation where gold is found in quartz veins or free.

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PROMINENT MEN IN INTERNATIONAL MINING

Roland S. Young has resigned from his position as chief research chemist of Rhokana, Nchanga and Broken Hill companies of northern Rhodesia to become director of the Diamond Research Laboratory in Johannesburg, South Africa. Dr. Young will still retain close contact with the base metal industry through his association with the Anglo American Corporation of South Africa.

Sir Herbert Gepp, R. L. Gair and R. McKeown, have resigned from the board of Deborah Gold Mines N. L., Bendigo, following a division of opinion over the future of the mine. Sir Herbert Gepp, who is chairman, considered that development of the mine below 2,020' was not justified and favored winding up the company.

C. M. White and W. W. Hancock of Republic Steel Corporation were among the directors named to the board of the newly formed Iron Ore Company of Canada which is to run the financing of the Quebec-Labrador iron ore concessions where an es-



JOHN R. GUSTAFSON has been appointed consulting geologist to the M. A. Hanna Company, Cleveland, Ohio. He has been associated with the U. S. Atomic Energy Commission for the past two years and previously to that held positions with the High-lager interests in Canada, Newmont Mining Corporation, Magma Copper Company, Metals Reserve Company, and the Central Geological Survey's survey in the Broken Hill District of Australia. He is a member of the AIME, Geological Society of America and other societies. His work for Hanna will be mainly on the iron ore deposits in Quebec and Labrador.

LOREN J. WESTHAVER

has been appointed manager of operations of Geneva Steel Company, Geneva, Utah, and will transfer from a similar position with the American Steel and Wire Company at Duluth, Minnesota. He has been with U. S. Steel subsidiaries for 21 years.



timated 355 million tons of the metal exist. Others named to the board are: A. J. McFarland and W. W. Holloway, Wheeling Steel Corporation; Frank Purnell and J. L. Maute, Youngstown Sheet & Tube Company; Ernest T. Weir, American Steel Corporation; Charles R. Hook and W. W. Sebald, Armco Steel Corporation; G. M. Humphrey, M. A. Hanna Company, who is also president of the new company; J. H. Thompson, Hanna Coal & Ore Corporation; Jules R. Timmins, Hollinger Consolidated Gold Mines; J. I. Rankin, N. A. Timmins and Company; and J. Y. Murdoch, Noranda Mines.

Wing L. Lew, general superintendent, Cia. Minera Aguilar, S. A., Tres Cruces, Provincia de Jujuy, Argentina, a St. Joseph Lead Company subsidiary, is on vacation in the United States and visiting mines and milling plants. He returns about the last of February.

F. M. Dingwall, of the London & Scandinavian Metallurgical Company, Ltd., London, spent a fortnight in the United States during mid-December. He flew from the West Coast to Japan and Korea to investigate tungsten properties.

Keith C. Stenhouse, assistant manager of the Foreign Division of The Dorr Company, returned to the United States recently from a three-month trip during which he visited many of the mining districts throughout Australia and the firm of Hobart Duffy Pty. Ltd., Melbourne. The Dorr Company's representative there and in New Zealand.

Thomas Acland has left The Martha Gold Mining Company in New Zealand and is at present in England. His permanent address is, however, c/o Wilding & Acland, 77 Hereford St., Christchurch, New Zealand.

M. H. Condor, senior geologist for the Bureau of Mineral Resources, Department of Supply and Development, Australia, has completed investigations in the North-West and is now in the Eastern States for further work.

H. F. Brownhill is in Bolivia as assistant general superintendent for Cia. American Sme'ting Boliviana, Casilla 901, La Paz. He was formerly general superintendent at Kerr Addison Gold Mines Limited, Canada.

J. P. Norrie, consulting mining engineer for the Roan Antelope Copper Mines and Mufulira Copper Mines, Ltd., of Africa, is visiting mining districts and studying methods in the United States.

M. A. E. Mauby has been elected vice president of the Australasian Institute of Mining and Metallurgy. He is director of exploration and research for Zinc Corporation Ltd.

K. J. Whiter and H. J. Pattenden have been appointed to the staff of Uriwara Minerals Ltd., Mpanda, Tanganyika, Africa.

C. F. Ramsayer and J. R. Miller of H. A. Brassert and Company, New

CHARLES R. COX has been elected president of Kennecott Copper Corporation, New York, to succeed E. T. Stannard, who was killed in a recent airplane accident, and will leave his position as president of Carnegie-Illinois Steel Corporation. He is considered one of the best operating men in the country and during the war received the Certificate of Merit from President Truman for his work in increasing the production of steel and finished products. He is a member of the American Iron & Steel Institute and was president of the National Tube Company for three years before 1946 when he became president of Carnegie. His place there will be taken by Clifford F. Hood, president of American Steel & Wire Company.



York, have left Darwin, Australia, to go to Singapore, Calcutta and Israel.

H. R. Potts, at one time chief metallurgist at Rio Tinto, is in Australia to advise on the production of sulphur from pyrites.

E. J. Morgan has resigned the chairmanship of Mr. Morgan, Ltd., but will retain his seat on the board. New chairman is J. Malcolm Newman.

W. T. Jewess is retiring after 23 years association with Gold Coast Geological Survey. He has been in charge of the Survey's London office which is being closed down and work will be carried on from the head office in the Gold Coast, Africa.

Dr. C. G. W. Schumann has been elected to the board of Stilfontein Gold Mining Company, England.

For greater metallurgical capacity - specify **FAGERGREN**



The Fagergren Flotation Machine handles more tonnage with less power consumption . . .

HIGHER SPEED OF FLOAT is accomplished by more intense aeration and shallower froth column. Hence, treatment time is reduced (by as much as 50%) and more tonnage per hour results.

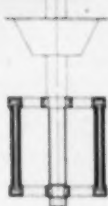
GREATER RECOVERY of valuable mineral is assured by increased bubble formation and the thorough diffusion of finer bubbles. Alternate compression and expansion of the pulp as it passes through the rotor-stator causes intense aeration and agitation. This action provides more interfaces, and is essential to rapid, efficient mineral separation. The result is improved metallurgical efficiency.

LOWER POWER CONSUMPTION per ton of ore treated results from the level cell design of Fagergren machines, the shallow pulp column and high capacity. Unrestricted flow of pulp through cell units minimizes the power consumption.

THE FAGERGREN FLOTATION MACHINE, an exclusive WEMCO product, assures operators of higher production per cubic foot of cell volume at lower cost.

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INTERNATIONAL



PERU—Several drilling crews are testing American Smelting and Refining Company's two copper deposits, Toquepala and Quellaveco, in the Andes Mountains. Large-scale production is planned if results of the drilling come up to expectations.

SURINAM—Production has been reduced about 33 percent by the Surinam Bauxite Company, meaning between 25,000 and 30,000 less tons a month exported. The reason for this decline is said to be dropping of the United States' demand for bauxite.

MEXICO—In order to determine the feasibility of resuming work, mining engineers and economists have been sent to make an on-the-spot examination of iron and coal mines at Zacualtipan. These mines were good producers until armed groups of the Mexican Revolution forced their abandonment some 35 years ago. The National Bank of Mexico will decide whether or not that resumption is practical, and if so whether or not the mines will be

government or privately operated. The Hidalgo government is reportedly willing to subsidize a private operator.

VENEZUELA—Iron Mines Company of Venezuela, a subsidiary of Bethlehem Steel Corporation, is said to be ready to start exporting iron ore from the newly developed El Pao mine. Oliver Iron Mining Company is also to start shipments soon. The ore so far blocked out by the two companies amounts to 90,000,000 feet for Bethlehem and 200,000,000 feet for Oliver (on the northern slopes of the Parima Range).

DOMINICAN REPUBLIC—Concessions lasting 30 years have been granted to Explotacion Minera de Hatillo, C por A, to develop three iron ore deposits in the country. The company is controlled by the government which will assist the development of the orebodies by building a railroad to the sites. About 43 million tons of ore is estimated to lie in the 15,707 hectare area.

MEXICO—Government agents at Salina Cruz, Oaxaca, principal port of southwestern Mexico, are probing information that uranium is being smuggled from there to Russia. The story is that Soviet freighters, under the pretext of loading bananas, are

stowing huge amounts of stone and earth said to come from a uranium deposit that gambusinos recently discovered near Salina Cruz, at the Pacific end of the Isthmus of Tehuantepec. The ministry of finance has also ordered troops to be alerted in the section on the same basis as soldiers who are guarding uranium deposits in Chihuahua.

MEXICO—Two scholarships for Mexicans to study at the Texas College of Mines and Metallurgy, El Paso, Texas, have been established privately by Senator Antonio J. Bermudez, director general of Petroleos Mexicanos, the official Mexican oil company. Senor Bermudez is setting up these scholarships with his own private funds.

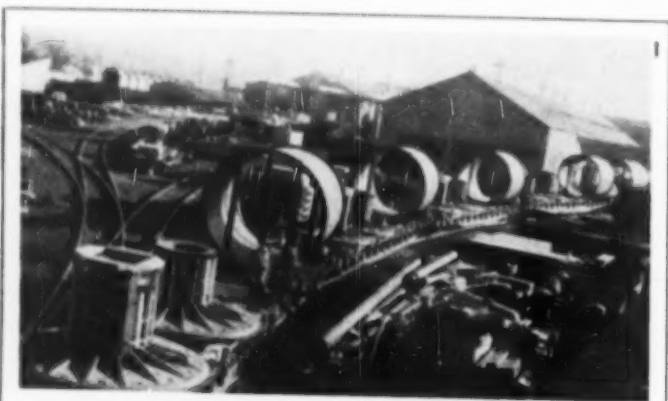


TASMANIA—The crosscut from the main shaft of the new No. 7 level of Aberfoyle N. L. intersected a big body of ore veins with widths of five inches to four feet. All veins show substantial tin and wolfram values. Development of No. 8 level at a depth of 867' has commenced.

WESTERN AUSTRALIA—At Kalgoorlie, Gold Mines of Kalgoorlie, Ltd., will make a geophysical gravimetric survey of areas extending about three miles south of the main Kalgoorlie workings. The productive quartz dolerite there is masked by unproductive beds, and, consequently, auriferous outcrops do not occur. A drilling campaign will be based on the results of the geophysical survey. That orebodies occur in a second dolerite bed east of the Golden Mile is also possible, and this will be investigated. North Kalgoorlie (1912), Ltd., will sink a new main shaft designed to haul about 30,000 tons a month. Cost is estimated in the vicinity of £A 175,000.

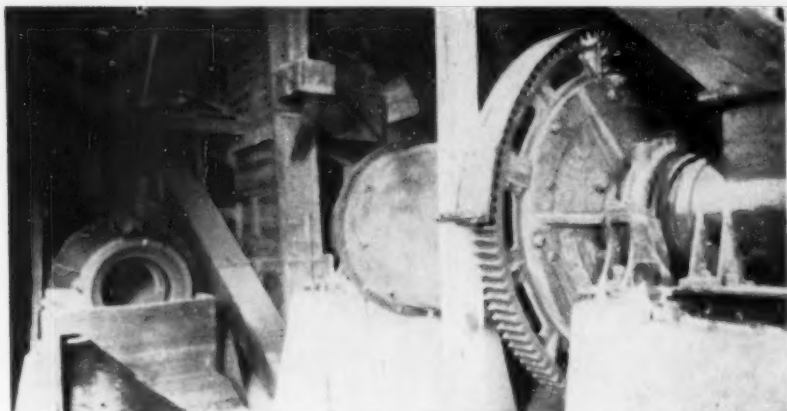
PHILIPPINE ISLANDS—Mindanao Mother Lode Mines, Inc., has announced that production for the month of December, 1949, was 10,400 tons with a gross recovery value of \$180,914. Production for the year is thus up to 98,200 tons with a valuation of \$1,671,218 (based on \$35 per ounce gold). Gold bullion continued to sell at substantial premiums throughout the year.

QUEENSLAND—Golden Plateau, Ltd., operating at Cracow, earned lower profit for the financial year ended June 30, 1949. Of 26,353 tons of ore treated, 7,142 ounces of gold was recovered. Mining costs rose from £A118.6 to £A26.0 a ton. Recent results from three diamond drill



EN ROUTE TO CHILE

One of the largest shipments of milling equipment in many years left Denver in December, bound for the \$110,000,000 copper project in Chile. The seven loaded flat cars seen above represent the first part of a total order for 25 Marcy ball and rod mills being built by Mine & Smelter Supply Co. When completed the total shipment will have included nine 10' x 12' Marcy ball mills, each with an approximate weight with lining of 225,000 lbs. and driven by an 800-hp. motor with a ball load of 134,000 lbs.; nine additional 10' x 14' Marcy open-end rod mills weighing 225,000 lbs., each with lining, to be driven with 180,000 lb. rod load by an 800-hp. motor; and seven 4'7" x 12' regrind ball mills weighing 75,000 lbs. each, carrying 48,000 lb. ball load and driven by 150-hp. motors. The rod mills will take approximately a minus 1/4" feed and in open circuit will make feed for the secondary ball mills operating in closed circuit and producing a product of from 5 to 8 percent plus 65 mesh. The smaller ball mills will be used for concentrate regrind and for several other similar circuits. Construction and shipment of the complete order of mills is expected to be completed around the middle of this year.



PLATEAU VANADIUM ORES ARE GROUND IN MARCY OPEN-END ROD MILLS

Every vanadium producer is using Marcy "Low Pulp Line" Grinding Mills—Here are the installations

By the end of 1949 there were seven Marcy Open-End Rod Mills in operation on the production of Vanadium. Vanadium producers are exclusive users of dry grinding Marcy Mills.

Vanadium producers learned from other metallic mining operations that MARCY Low Pulp Line Mills pay off in profits when compared with grinding equipment of other types. The reasons are: more tonnage per KWH of power input, more uniform product, less mill space for capacity, lower cost per ton of finished product in original cost, operation, and maintenance. Rapid circulation of mill contents is important in vanadium production be-

cause a minimum of fines is necessary to prevent excessive roasting furnace losses.

Here are some of the Vanadium installations with MARCY Open-End Rod Mills . . .

U. S. Vanadium

- (1) 4 x 6 Rod Mill—Rifle, Colo.
- (1) 2 x 4 Rod Mill—Grand Junction
- (1) 3 x 6 Rod Mill—Durango

Consolidated Caribee

- (1) 4 x 10 Rod Mill—Nederland, Colo.

Vanadium Corp. of America

- (1) 3 x 6 Rod Mill—Naturita, Colo.
- (1) 4 x 6 Rod Mill—Montecello, Utah

Eldorado Radium

- (1) 2 x 4 Rod Mill—Port Hope, Ont., Can.

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THE **Mine & Smelter**
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FEBRUARY, 1950

[World Mining Section—21]

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cores from fourth and fifth levels are promising. For twelve weeks ending October, the company crushed 6,500 tons for 1,745 ounces.

NETHERLANDS INDIES—Production of bauxite in Indonesia during the first six months of 1949 was double the same period of 1948—332,246 long tons, compared with 143,148 tons. Most of the production in both cases was exported.

WESTERN AUSTRALIA—Due to the shortage of labor on Western Australian gold fields, the Australian immigration authorities have agreed to provide immediate shipping for 400 British migrants who have been specially selected to work in the mines. Owing to the homes shortage, it will be necessary to house the migrants in temporary quarters at the old Boulder race course.

NEW SOUTH WALES—Record profits, reflecting the high price of base metals, have been announced by *North Broken Hill, Ltd.* (£A1,712,451) and *Broken Hill South* (£A1,375,193) for the year ended June 30, 1949. North's mill treated 329,990 tons of ore and South's 267,028 tons. North's recoveries showed a slight decrease due to the mining of increased quantities of semi-oxidized ore; but South's recoveries increased. About 200,000 tons of lead-zinc concentrates, accumulated at Broken Hill during the coal strike, are being railed to Port Pirie, South Australia, at the rate of 11,000 tons a week. Work on the Broken Hill-Menindee

pipe line is being speeded up by the employment of migrant labor.

VICTORIA—According to Chairman George Pell of Central Deborah gold mine, Bendigo, funds now held by that company, together with proceeds from gold to be won in development, should be sufficient to enable Manager T. Rowe to explore thoroughly the main Deborah back and associated spurs. With this end in view, the company has completed 251' of shaft sinking.

WESTERN AUSTRALIA—High assay values disclosed by Central Norseman's drilling campaign at the *Princess Royal* indicate the existence of a substantial body of high-grade ore, distinct from the main body now being mined.

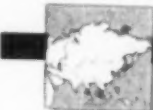
WESTERN AUSTRALIA—At Kalgoorlie, an Italian migrant named Reghanzani struck gold after only three months in Australia. With Angelo Ronchi, an experienced prospector, he pegged out an abandoned lease at Parkers Range, in the Southern Cross district. A shot at the 80 level disclosed a rich patch which yielded ten ounces from 65 pounds of ore, with further prospects. In addition, a parcel of 6 dwt. ore has been won.

VICTORIA—Following the rise in the Australian price of gold as a result of devaluation, many new leases have been pegged in Victoria, and it is anticipated that gold production figures will rise in 1950.

NORTHERN TERRITORY—Red

Terror Gold Mines N.L., Tennant Creek, reports advancement of the 145 feet level eight feet from the shaft. It is claimed the face of ore is four feet wide, with dish prospects approximating an ounce and a half to the ton.

WESTERN AUSTRALIA—For four weeks, ending November 8, *Mountain View Gold N.L.* crushed 1,156 tons of main shoot and second-grade ore for gold estimated to be worth £A19,000.



INDIA—The prices of manganese and mica will be raised to the pre-devaluation dollar price level. In the ten months of the current year, approximately 75 percent of India's export of over 500,000 tons of manganese has gone to the dollar and other hard currency countries. In regard to mica, the U. S. A. alone has taken two-thirds of India's total export of this commodity during the past three years.

JAPAN—Electric prospecting and deep boring have revealed new orebodies at the Azuma mine, owned by *Teikoku Sulphur Mining Company*, and at the Ogushi mine, owned by *Hokkaido Sulphur Mining Company*. Both of these mines are situated in Gunma Prefecture. Geological structures in this area are such that more new orebodies are expected to be found with continued exploration.

INDIA—The management and control of *Champion Reef Gold Mines of India, Ltd.*, has been transferred from London to India and is now under the direction of John Taylor & Sons (India), Ltd., whose London officers, managers since the inception of the company, remain as consulting engineers. During the past year, 105,070 tons of gold ore was treated and 52,604 ounces of fine gold recovered. In the north section, the main lode and folds were developed on the 90th, 91st, and 92nd levels. In the southern section these same levels, plus the 93rd, were opened up further. The reserves of payable ore are now about 400,000 tons, and of low-grade ore about 48,400 tons. The support of the ground to prevent rock bursts is a problem of major importance and, in 1948, 44,560 tons of granite blocks for the rigid support of stopes was used.

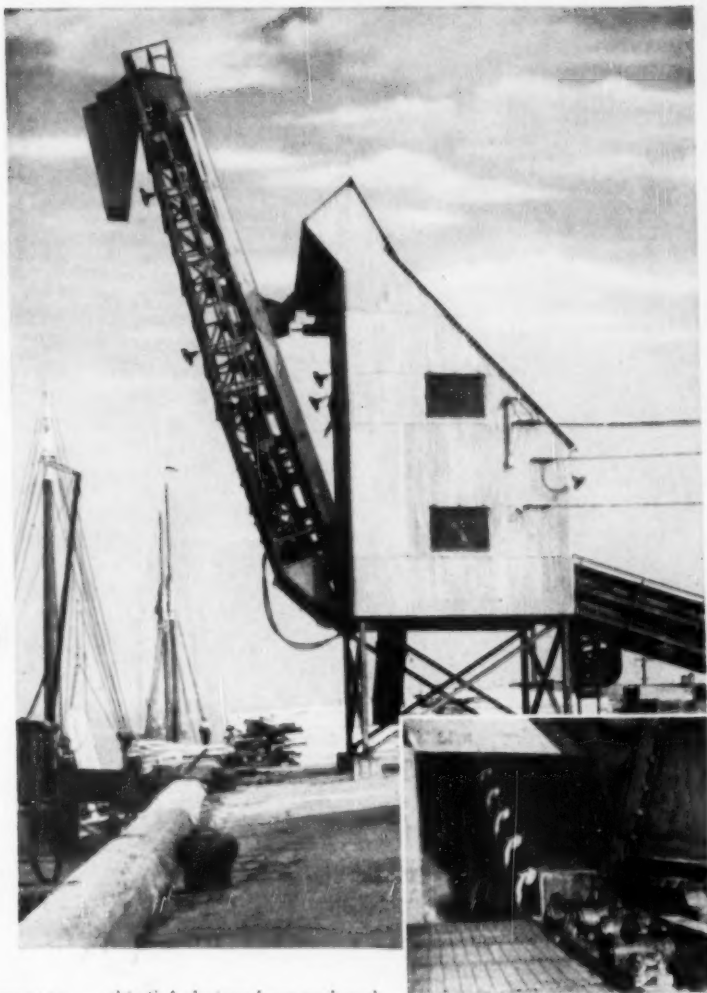
CHINA—Revival of the Shanghai steel industry is reported by the Communist New China News Agency, which states that about half the works are back in operation. Coke, coal and other ores from Manchuria



PAST PROFITS AND FUTURE PROMISE

The sum of £A 416,100 in dividends from a mine developed on an abandoned gold field is the fine record of *Wattle Gully Gold Mine N. L.* Operating on one of the earliest gold fields discovered in Australia—Castlemaine, Victoria—production and dividends were maintained throughout the difficult years of rising costs and pegged gold price. Reserves exceed 75,000 tons of profitable ore; three levels have been extended into auriferous ore beyond the limits of existing stopes; an adjacent property known to contain gold ore of average grade has recently been purchased. Costs of operations will be reduced by changeover to electric power. Devaluation of Australian currency (raising the local price of gold from £A 10.155 to £A 15.210) has further enhanced the future of the company.

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Simple, fast, economical, compact . . . this S-A designed ore and coal handling system moves big tonnage at low cost. With no manual effort, this boom conveyor and supplemental equipment can quickly load lake steamers at minimum handling cost.

Supplying cost-reducing systems for moving all kinds of bulk materials has long been the job of S-A engineers. From the S-A line that includes every type of conveyor, S-A engineers can select the one right combination to provide the most modern system to do a particular job . . . and at lowest cost per ton.

Take advantage of the years of experience of these men. Just ask for their recommendations either for a new installation or an improvement of your present method. There's no obligation so . . . write today.

From two rail cars at once, ore and coal can be dumped into double truck hopper. S-A rack and pinion gates regulate flow of material to two short feeders in tunnel under hoppers. Pan feeders move material to an inclined belt conveyor which takes it up to a dockside housing. Hinged boom conveyor conveys material out over dock for discharge directly into ship holds. Hoist permits raising and lowering boom conveyor.

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FEBRUARY, 1950

[World Mining Section—21]

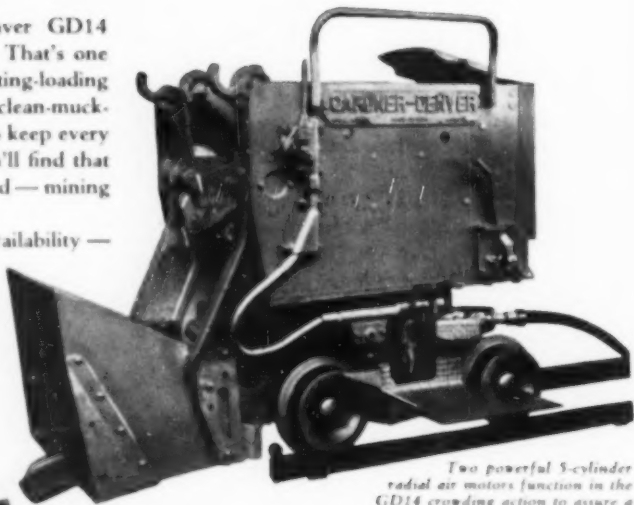
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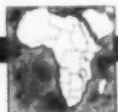
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and North China are being shipped without interruption.

INDIA—Because of the present transportation difficulties, the Ministry of Commerce has decided to place iron ore under export control. A limited quantity has been allotted for export to Japan and licenses will be granted on the basis of contracts approved by SCAP authorities in Japan.

KOREA—Greater recovery of tungsten concentrates found in the extensive deposits at Sangdong will soon be realized by a joint project of the Korean government and the U. S. Economic Co-operation Administration. Ore crushing, grinding and classifying equipment is to be sent from the U. S. for installation at Sangdong, and mining operations will increase from 350 metric tons to 450. The cost of the project is about \$356,000, of which ECA will supply \$334,000 for the equipment and freight. The Republic of Korea will assume the remaining costs to pay for labor and other local expenses.

INDIA—Repeal of the gold duty virtually snatched the Kolar Gold Fields from impending demise from a loss of 75 to 80 percent of its gross receipts, according to M. A. Srinivasan, vice-chairman of the Mysore Gold Mining Company, Ltd. The recent rise in production costs could not have been overcome added to the duty. The stimulus to the industry has been considerable, and the Mysore company was able to put \$12,200 away in a special reserve during one year as against nothing the year before.



AFRICA

SOUTH AFRICA—Gold mines in production are being benefited greatly by devaluation. Those in the development stage are not. For example, *Libanon Gold Mining Company*, which began producing a year ago, has been transformed financially, according to Dr. W. J. Busschau, head of the firm. Past delays in equipment deliveries, labor shortages, and rising prices had made borrowing necessary to complete the mine's capital program. Because of devaluation, only £60,000 had been borrowed and this money, plus all capital expenditures in the coming financial year, could be paid off from profits. On the other hand, S. R. Fleischer, chairman of the *Doornfontein Gold Mining Company*, which is still in the developing stage, said that capital costs will increase due to higher wages and cost of stores and equipment. However, as soon as the mine is in production, the situation will be alleviated. Devaluation's effects on costs were not yet completely clear.

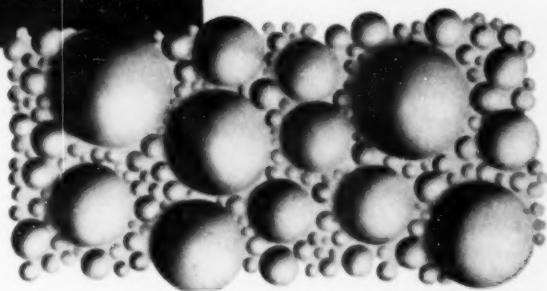
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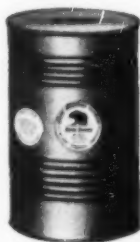
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[World Mining Section—25]

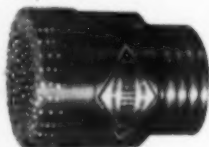
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but an increase of 10 to 15 percent seemed likely.

WEST AFRICA—Nanua Gold mines report satisfactory progress on the preparatory work to production next year. Ore reserves now total more than 787,000 tons, averaging 6.68 dwts. over a width of 141". This should keep the plant, which only has a rated capacity of 12,000 tons a month, busy for a while. Underground operations have now reached the fifth level.

NORTH AFRICA—Iron, phosphate and lead production is constantly increasing in northern Africa. During the first nine months of 1949, Algeria, Tunisia, and Morocco produced 2,722,000 tons of iron ore, 4,510,000 tons of phosphate, and 58,300 tons of lead. In the same period in 1948, 2,400,000, 4,375,000, and 46,000 tons were produced, respectively. Production of manganese in Morocco during the same period in 1949 was 182,000 tons—24,500 tons more than in 1948.

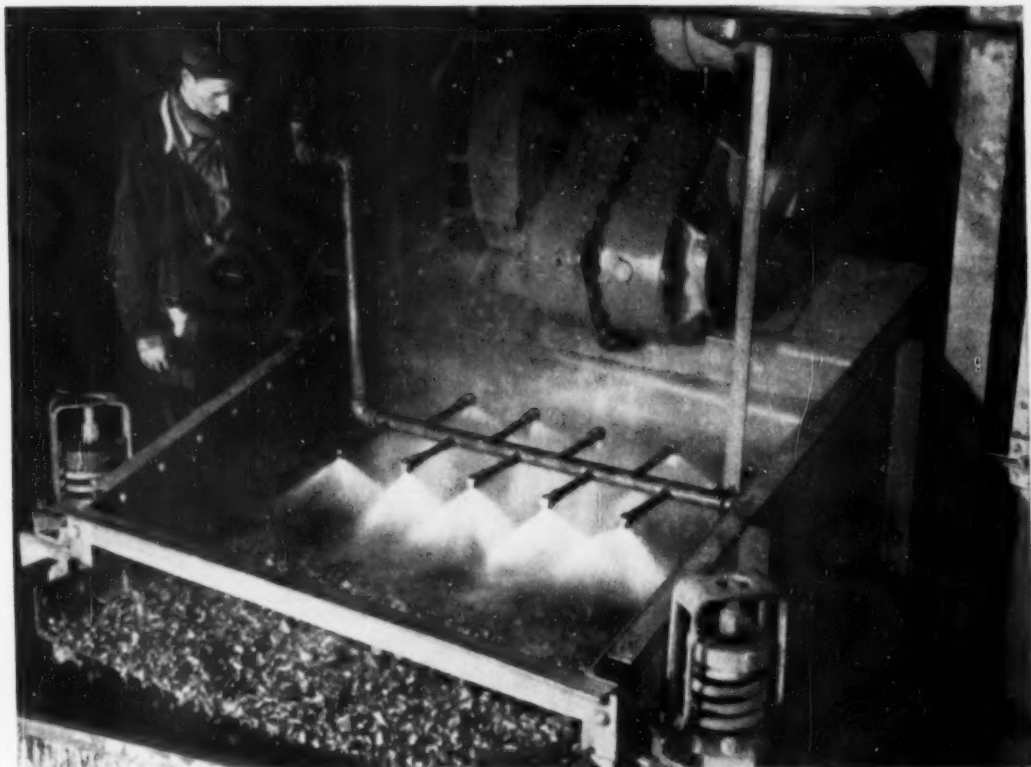
AFRICA—Marshall Aid experts are conducting an extensive mineral survey of Tanganyika. They are examining the possibilities of local deposits of graphite, lead, industrial diamonds, copper, zinc and chrome, for which there is a ready market in the United States. This survey is part of a more extensive operation which, in time, will cover the Rhodesias, Kenya, Portuguese East and West Africa and French and British colonies in West Africa.

TRANSVAAL—A report from the Northern Transvaal (Messina) Copper Exploration Company, Ltd., says that its shaft was sunk from 203' to 530', and all equipping is up to date. Recent development on the 5th level exposed the orebody, which had been intersected by a borehole at an incline depth of 600' from the surface. About 35' of crosscutting and 14' of driving have been done on the orebody. Two boreholes were stopped at 800' as unlikely to yield further information. One other had reached 837' and was continuing.

WEST AFRICA—Lyndhurst deep level mine announces its first results of gold production last month. It produced 5,055 tons of ore for 1,611 ounces which were treated by Konongo Gold Mines, its associated company. More important are the underground developments for the quarter; of 158' driven, 31.6 percent was declared payable, which averaged 15.7 dwts. over 41 inches. These low-grade producers benefit most from the increased price of gold. Konongo, for instance, reported a monthly profit for September of £18,539 compared with the previous month's figure, £7,326. Taquah & Abosso profit rose from £1,369 to £22,288 and Ashanti jumped from £15,721 to £101,610.

SOUTH AFRICA—A small deposit of asbestos was recently discovered on the Witwatersrand, and

MINING WORLD



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INTERNATIONAL

operations for its exploitation have made such good progress that more machinery is being acquired to boost output. Statistics show that South African production and sales of all types of asbestos during 1949 were considerably higher than in '48. Blue and chrysotile asbestos output up to September was 17,000 and 6,700 tons, respectively. Amosite output was 41,000 tons.

SOUTHERN RHODESIA—Demand for Southern Rhodesia mica is said to have outstripped supply since devaluation. Producers are now offered 70 percent of current British market prices in advance, provided that their products are certified up

to grade by the government mica inspectors. There is also a clamor for Rhodesian asbestos, samples of which have been sent recently to Argentine and Trieste. A strong demand for chrome (metallurgical grade continues, though American orders for chemical grade chrome seem to have been cancelled.



NORTH AMERICA

BRITISH COLUMBIA—Placer Development, Ltd., the British Co-

lumbia mining company with holdings in placer gold properties on several continents, made a profit of \$488,231 during the year ended last April 30, according to the annual report just issued. Charles A. Banks of Vancouver is president. The company controls *Bulolo Gold Dredging Company* in New Guinea, *Pato Consolidated*, *Amazon Consolidated*, *Nechi Consolidated* (a Colombian mine where a second dredge may be installed soon) and other mining companies in South America, and is also interested in *American Placers*, its U. S. subsidiary which has been drilling for oil, and finding it, in Texas. In about six months, Placer Development will increase the capacity of the mill at the *Jersey* lead-zinc mine from 300 to 500 tons daily and is considering a further increase of 1,000 tons daily.

ONTARIO—Harry Miller, founder of *Silver Miller Mines, Ltd.*, has completed arranging the purchase of the *La Rose* silver mine at Cobalt, through the backing of the same interests financing Silver Miller. A new company is being set up to develop the *La Rose* and will be called *Silver Harry Mines, Ltd.* As in the past, ore will be shipped from the mine without milling and no mill is contemplated. Before beginning production, some new machinery is being moved in and dewatering is in progress in order to start a 100' crosscut from the *La Rose* workings to the objective, an extension of a valuable vein lying on adjoining property. The *La Rose* has produced 17,000,000 ounces of silver since the early 1900's. Meanwhile, at the Silver Miller successful operation of a new 50-ton mill is reported and, in fact, has stimulated other mining operations in the area as at least eight are now in production and about 15 more are involved in exploration.

ALASKA—Sinclair H. Lorain, new regional head of the U. S. Bureau of Mines in Alaska, has advised that among other projects, he will continue examination of the two copper deposits, one near Lake Iliamna, and the other near Lake Kontrashabuna in southwestern Alaska, which have been known for many years. Both appear to be rather large, low grade deposits but no definite information as to their average copper content has been available. Both deposits have been systematically trenching and sampled; several diamond drill holes are being drilled in the Lake Iliamna deposit to indicate, approximately, the content of the primary copper sulfide below the oxidized outcrop.

BRITISH COLUMBIA—Copper mining is to begin soon at *Rico Copper Mines, Ltd.*'s property in the Cheam Range, 15 miles south of Laidlaw, according to W. J. Asselstine.

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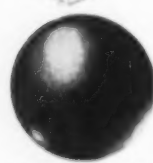
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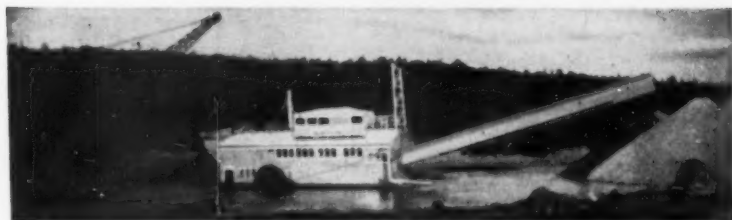


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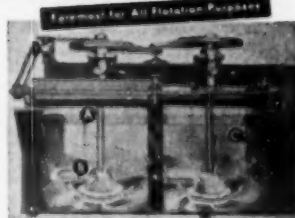
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The company has been developing the claims for some months. Ore will be trucked in the Fraser River, loaded in barges and towed to the Tacoma smelter. Ore is said to be of a grade sufficiently high not to necessitate concentration on the site before shipment. A four-and-one-half mile road is under construction to connect the projected 4,000' tunnel portal with roads to the Jones Lake base camp.

QUEBEC—A new highway opened from St. Felix to Chibougamau mining camp, which has been inactive for years, has had a most beneficial effect on mining in the area. Ore-bearing ground has become accessible, operating and transportation costs of existing companies have been greatly reduced and new ventures are being started. *Lake Surprise Mines, Ltd.*, which has 25 claims in the district, is to begin a large program of exploration. A gold discovery three miles west of the new highway is on record in Queyhus Township and was made by Carl Mosher. Thomas Arkell and Bev Jowsey for *Calmore Mines, Ltd.*

ALASKA—The best year in its history was reported by the *Brisker-Johnson Company*, operators of a placer gold mine on Caribou Creek, 80 miles east of Fairbanks. The mine

closed for the winter in November.

SASKATCHEWAN—According to K. S. Oliver, manager, *Orbit Uranium Developments, Ltd.*, now has a total of 25 radioactive zones on its property in the Black Bay area of Lake Athabasca. No. 2 zone, found 1,500' northwest of base camp, has been followed 200' with a width of 75'. No. 3 zone, found 500' northeast of base camp, shows four veins. And No. 4 zone, found eight miles north, shows stannic and radioactivity in lenses of pegmatitic rocks ranging from two to six feet wide and 50 to 200' long. Several lenses lie in granite over a 125' width. Under the direction of E. M. Bartley, geologist, work will be carried on at all zones.

ONTARIO—In the third quarter of 1949, *Madsen Red Lake Gold Mines, Madsen*, produced as much as in the first six months of the year, due to doubled mill capacity. Also ore value was higher than the overall average since 1938. Mill rate is 800 tons daily at present and will be held to that figure until the company's cash position improves after the extensive remodeling of the plant. At that time a rate of 600 tons per day will probably be returned to. Expanded development work will then be done. Present underground work

involves shaft sinking to the 18th level (2,900'). A station on the 13th (2,050') has been cut. Ore reserves, estimated at 1,000,000 tons, will be greatly increased if the six new levels being opened up continue in good ore.

BRITISH COLUMBIA—*Hedley Mascot Mines, Ltd.*, may acquire a controlling interest in *Silver Giant Mines, Ltd.*, on the condition of installing a mill and getting Silver Giant's silver-lead property into production.

ALASKA—Completing the season's run, the *United States Smelting, Refining & Mining Company* has shut down its four dredges in the Fairbanks district and two more that were operating on the Seward Peninsula near Nome. Winter work is now under way.


QUEBEC—Near Val d'Or, *Buf-ladon Gold Mines* is drilling a section of the north contact of the granodiorite mass, west of previous workings. Should drilling results be favorable enough the property will be reopened underground, and with sufficient tonnage a mill will be built. The property consists of 14 claims with a three compartment vertical shaft to 983' and six levels. Operations were suspended in the middle of 1948 to acquire additional funds for development.

ONTARIO—At O'Brien, Ontario, production is not expected before summer at *Castle-Trethewey Mines*, where a big development program is under way. A winze has been sunk in the diabase making three more levels nearly complete. Driving on all three new levels is being started. A long crosscut, to be driven out on the bottom or on the 1,100' level, is the most important project as it is expected to pick up the Siscoe ore system. Stopes have been reopened on the upper levels and the mill rehabilitated after 19 years of idleness. Some new equipment is being added but old machinery and workings are in surprisingly good condition. This property is a silver mine with a small quantity of cobalt. The company has gold holdings also.

SASKATCHEWAN—Exploration and prospecting for occurrences of uranium mineralization is continuing at *Baska Uranium Mines* property in the Lake Athabasca area, according to Dr. G. C. McCartney, consultant for the company. Two 200' radioactive zones found early last fall will be further explored later on, and equipment for blasting and drilling these showings has been provided.

ALASKA—Concerning the discovery of uranium in the Askinuk Mountains, Frank Waskey of Fortuna Ledge advised pan-concentrates from a stream bed were sufficiently radioactive to admit of a quantitative assay.

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but the percentage of uranium indicated was so small as to furnish no encouragement for that particular locus. The Askinuk extends easterly from Cape Romanoff (Lat. 61° 45' N., Long. 166° W.) for about 30 miles, with an outside width of about five miles. The predominant rock is a coarse grained granite, weathering in large blocks or slabs. Quartz crystals, usually smoky, are not uncommon. Pannings in stream beds show considerable hematite, some magnetite, a little goethite and very little gold.

QUEBEC—Anacon Lead Mines, Ltd., is now milling 470 tons of ore daily and expects to raise this rate to 600 tons daily as soon as new equipment can be installed. The mine is at Montauban les Mines, 50 miles east of the City of Quebec. A four year minimum operation has been outlined down to the 400' level with good possibilities of extensions of the ore beyond. During last summer 100,000 tons of tailings was exposed when a small lake was drained to allow break-through to the surface from one of the larger stopes. This tailings pile was found to contain four percent zinc, and 60 to 70 tons per day is at present being pumped up and put through the mill at very low cost. Tests to determine the advisability of recovering mica are being carried on. An estimated 20 to 25 tons per day could be produced. Major recovery from the mine is in zinc, then lead and finally silver. Philip Malouf and Douglas Parent are the engineers.

ALASKA—Two more men and extra equipment were taken to the Livengood placers, recently, by Dan Beyer, manager. He is opening up the mine tunnel in order to prepare for the resumption of mining as soon as weather permits.

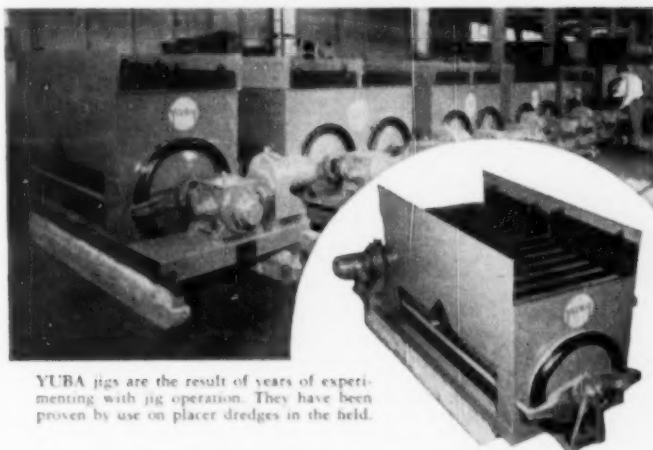
QUEBEC—Increased operations at Malartic Gold Fields, Ltd., during the past few months include adding an underground diamond drill and a surface drill, stope preparation on the 750' level of the No. 2 mine, installation of a dust filtering system in the crushing plant and the raising of the total stopes in production especially on the 1200' level of the No. 2. Currently 1690 tons of ore is being milled daily. The property is at Hales.

ALASKA—In the White River mining district both in Alaska and the Yukon, the Pewabik Mining Syndicate, Ltd., has obtained 62 mining claims from a group of men including E. F. Wann, Robert C. Byers and Floyd Jacobs. Wann and his associates spent last season exploring the properties, which have mainly copper and gold placer deposits, and the Pewabik company, recently formed for the purpose of acquiring, prospecting, exploring and producing minerals and metals, took over the claims as the first of its proposed operations.

LABRADOR-QUEBEC—During explorations in the new iron-ore

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fields, Labrador Mining and Exploration Company, which has concessions on a 24,000 sq. mi. area, confirmed the report that manganese exists on the property and is of definite commercial grade.

YUKON TERRITORY—Final construction of a new road from Minto to Mayo, and proposed building of a bridge across the Stewart River and an airstrip near Mayo, is stimulating silver-lead ore production and shipment in this mining district. *United Keno Mines, Ltd.*, Mayo, shipped 10,000 tons of concentrates during last season, a figure which would have been higher had fire not destroyed the company's mill at the *Elan* mine. At the *Calumet* mine, reports have been received that several new veins were discovered having considerable value.

ONTARIO—Being readied for operation is *Queenston Gold Mines' Kirkland Lake* mine which adjoins the property of *Upper Canada Mines, Ltd.*, its parent company. Because the last named property is in production, the opening of *Queenston's* mine will not entail great difficulties. The plan is to install a 500-ton mill able to be expanded to 1,000 tons, if desired in the future. Equipment is on hand already for the first phase of the program and dewatering of the No. 3 and No. 4 shafts is about to begin. Drilling has proved up reserves to last several years.

IDAHO—The *Hope* mine, operated by the *Hope Silver-Lead Mines, Inc.*, and the *Whitdelf* mine operated by *Whitdelf Mining and Development Company*, at Clark Fork, are the objects of a deeper development pro-

gram directed toward opening the ore in the lower horizons of the Nordquist area between the U. S. Bureau of Mines diamond drill holes 2 and 3 in the Pearl vein. The stopes in the upper levels of this orebody were the principal source of the 385 carloads of ore and concentrates that have been shipped to the smelters by the *Whitdelf* company. While the new management of the *Hope* mine is driving the north extension of its lower tunnel from the bottom of the shaft into this area which lies beyond its northern boundary line, the *Whitdelf* company is arranging to deepen its main shaft and mine the ore. Drifting south on the vein to mine the ore on both sides of the Pugh fault is an additional part of the program.

BRITISH COLUMBIA—*Western Uranium Cobalt Mines, Vancouver*, is developing the *Victoria* claims on the *Rocher de Boule* Mountain near *New Hazelton*, for many years known as a richly mineralized area. Values in uranium, gold and cobalt have been disclosed as a result of work done on the recommendation of *M. W. Jasper*, consulting engineer, and *James Mackee*, president.

BRITISH COLUMBIA—The newly organized *Atlin-Ruffner Mines (B. C.) Ltd.* has taken over the old *Atlin-Ruffner* property in northwestern British Columbia and as a result of a report by consulting geologist *Victor Dolmage* the base metal there may be developed under a new program. Advices from the north also indicate that shipments out of *Portland Canal* may be resumed by the *Big Four Silver Mines* whose *Porter*

Idaho, Prosperity and *Silverado* properties shut down in the early 1930's.



GERMANY—In the Eastern Zone, monthly capacity of the aluminum reduction plant at *Bitterfeld* is to be increased from 200 tons to about 1,000 tons. Existing electrical installations are said to be sufficient for such an increase of production.

SPAIN—Tungsten mining in *Galicia* is active again and recently shipments of some consequence have been made to Switzerland and the United States. Whether or not the new supply of concentrates relieves the shortage remains to be seen. During the past year, the districts of *La Coruna*, *Crense* and *Pontevedra* produced about 16,000,000 pesetas worth of tungsten concentrates.

NETHERLANDS—*The Royal Dutch Blast Furnaces and Steel Company* will expand and modernize its property through an expenditure of about \$47,000,000. Of this amount \$23,500,000 has been granted by the U. S. and will be applied to purchases of installations here, while the similar remainder will be used to buy machinery and equipment in Marshall-aid countries. An increase from 25 to 50 percent in steel products for steel-starved Holland is the aim of the project. The expansion will include the construction of a rolling mill for steel blocks, production of thin steel sheets and tin plate and an increase in steel capacity. The plant will cover 18 acres.

RUSSIA—Blasting to divert large underground rivers and get at the large uranium deposits at *Tuya Muyun* is said to have been going on and is part of a plan to increase output of the mines about four times by the end of 1950. *Tuya Muyun* is a rich mineral area between *Osh* and *Molotovbad*, northeast of *Sinkiang* and *Afghanistan*.

SPAIN-SWEDEN—A new trade agreement between these countries includes the shipment of 3,000 tons of lead and 200 tons of wolfram from Spain, and machinery, roller and ball bearings from Sweden.

HUNGARY—A draft of the five year plan for the period 1950-1954, submitted by the Hungarian Working People's Party to the nation has as its object further development of industry and modernization of agriculture so that the emphasis will shift eventually from the latter to the former. Steel production is pegged to



WILL NORWAY'S ONE SILVER MINE LAST?

Native silver is found in Norway's only silver mine at *Kongsberg, Solvørk*, where operations have been going on since 1621. However, the deposits are becoming exhausted, and, therefore, production has declined during the last years. Since the commencement of operations at *Kongsberg*, 1,250 tons of silver has been extracted. In 1919 the production was 14.5 tons of silver but in 1947 it was only 7.4 tons. However, the devaluation of the krona and the discovery of a new deposit at the mine may stimulate the country's lagging silver industry again.

INTERNATIONAL

rise from 0.8 to 1.5 million tons yearly. Several new factories and industrial plants will be built.

GERMANY—A recent decree has repealed the quantitative restrictions on imports of many commodities into Western Germany from OEEC countries. Imports of all ores and metallic raw materials—except lead and zinc ores—as well as of quicksilver, silicon, tantalum, vanadium, arsenic metal, germanium and columbium have been liberated.

RUSSIA—Through a trade agreement with Sweden, Russia will ship to Sweden 10,000 tons of manganese ore, 500 tons of ferromanganese, 60,000 tons of potassium salt, 30,000 tons of apatite concentrate and 4,000 tons of asbestos, as well as several other commodities.

YUGOSLAVIA—Location of commercially valuable deposits of bauxite, manganese, lead-zinc and coal in Montenegro is reported by the official news agency Tanjug. Bauxite deposits were said to total several million tons, but no estimates were released on tonnage of the other ores or coal. The manganese was found in the northeastern part of the province.

ENGLAND—New Consols mine at Plymouth is now unwatered to between the 74 fathom (444') and the 86 fathom (516') levels. Development is now proceeding at the 40, 52, 62 and 74 fm. levels, with best results being obtained from the eastern part of the mine. The new concentrating plant was opened recently at a formal ceremony. Values are in tin, copper and arsenic with a little silver and gold.

GREECE—Chrome production has begun again at Union Miniere's mine in the Domoco area and at Alexander Apostolides' mine in the Volos area. Before the war these mines produced 50,000 tons a year, but now, due to high costs and wages and the unsettled economic conditions of the country, considerable difficulty is expected for either attaining or disposing of any such output at current European market prices.

SWEDEN—Svenska Metallverken AB will buy Aluminum Ltd. of Canada's interest in Svenska Aluminium-kompaniet AB, it was agreed at a recent meeting of the company officials. Output will then be increased 8,000 tons per year, or double the present figure, and Swedish dependency on imports will be much lowered. The capacity of the Svenska Metallverken rolling mills at Finspong will be increased from 4,000 tons to 8,000 tons annually.

BIZONIA—The production of potash salts is expected to be computed at 6,530,000 tons of crude potash in 1949, an all time record, the highest figure so far attained being 6,230,000

tons in 1943. Contributing to the output are ten mines in the British and American zones and one in the French zone.

ENGLAND—In northern England the activities of several barite mines are reported as follows: Silverbank, near Appleby, Westmorland, is expanding and is installing Humphrey Spirals to recover fine barite, using jigs for the coarser material. The mine is owned by Laporte Ltd. of Luton. Force Crag mine at the head of Coledale, Braithwaite, is also being developed for its barite. The Close House mine near Lunehead, Yorkshire, is being worked by openpit methods for barite. The property is run by Athol G. Allen of Stockton-on-Tees. In the same area, barite deposits at the Cow Green mine and Dubby Syke mine are being developed by the Anglo-Austral Mining Company. A new shaft is being sunk at Cow Green.

NORWAY—Domestic sources of uranium are probably sufficient to supply the country's first atomic pile now under construction, according to Gunnar Randers, chairman of the Norwegian Research Council's Atomic Committee. Ore is coming from feldspar deposits in southern Norway. No large scale uranium search has been started but samples are being sent in by prospectors continually. So far, the best samples have come from the feldspar districts near Setesdal and Kristiansand, but no really high grade deposits are known.

Turkey's Minerals

Continued from Page 30

percent iron content. The Camdag mine containing 75,000,000 tons of oolitic iron ore is at present in its development stage.

Lead-zinc ore occurrences are abundant in Turkey. Commercial deposits are found in the Canakkale-

Balikesir region; at Keban, Bolkar-dag and Denek; and near Ordu and Giresun. The most outstanding lead-zinc mine was the Balya mine, which was operated from 1913 to 1940. Four million tons of ore was mined from this deposit. Due to high operating costs and unfavorable market conditions, the mine was abandoned in 1940. The Keban mine in Eastern Turkey has recently been developed and a flotation plant installed. This property has 100,000 tons reserves and will soon be operated by Eti Bank. Another Eti Bank property is the Bolkar-dag mine on the Taurus Mountains. With 300,000 tons of proved reserves, this mine is also scheduled for operation in the near future. Exploitation of other lead-zinc deposits has been left to private enterprise.

Other Mineral Commodities

Other minerals of commercial importance that are found in Turkey are given in Table No. 2.

Annual production of minerals mined in Turkey for 1947 and 1948 are set forth in Table No. 3.

Large scale mining operations are financed and administered by Eti Bank, which is a government sponsored establishment founded in 1935. All the collieries, three lignite mines, two copper mines, an iron mine, a chromite mine and a sulphur mine are now operated by Eti Bank. Long term exploitation programs are executed through this government agency, thus partly solving the problem of providing the large capital required for such mining enterprises. However, due to financial difficulties encountered both by Eti Bank and private companies, exploitation of all the known mineral deposits in Turkey has been achieved only partly; and capital is needed for further development of a mining industry which would improve the world supply of many strategic minerals.



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PRESSED STEEL TURNABLES: Hardinge Company has just issued a new 4-page bulletin #48, on its line of pressed steel turnables, designed for any material processing or industrial operation where rail cars are used.

SQUIRREL CAGE MOTOR STARTER: Allis-Chalmers oil-immersed, full voltage Type 371 wall-mounted starter for control of squirrel cage motors and the primary of wound rotor motors of 350 hp. or less, at 2,300 volts is described in a new bulletin, number 14B7274.

INDEPENDENT-PNEUMATIC TOOL COMPANY'S new circular on new Thor Silver Line portable electric tools is now available upon request.

MINES EQUIPMENT COMPANY, recently taken over by Joy Manufacturing Company, has just published two new bulletins; one covers MINES new "Emergency Belt Control System" and the other illustrates the company's new pre-fabricated trolley pole connector assemblies.

ATLAS POWDER COMPANY'S new booklet "Rockmaster 16 Blasting System" recently off the press, discusses in detail millisecond delay in blasting.

EUCLED ROAD MACHINERY COMPANY has released a new book, "Euclid Loader for High Speed Loading of Large Hauling Units."

BENEFICIATION: Let AMERICAN CYANAMID Company engineers assist you with your beneficiation problem. Send in your inquiry.

MINE SAFETY APPLIANCE COMPANY recently published a new bulletin No. 1A-17 describing the M.S.A. Velocity-Power Driver which drives steel studs instantaneously into steel, masonry or concrete.

THE DEISTER CONCENTRATOR COMPANY'S bulletin 14 H describes and illustrates their Leahy No-Blind vibrating screen.

CHICAGO PNEUMATIC TOOL COMPANY offers their new bulletin No. 814-2 which offers authoritative information on concrete vibrators.

MARION POWER SHOVEL COMPANY'S bulletin 193 gives the complete story of the Marion 151 M, 6 cubic yard shovel, designed for continuous service in rock.

DIESEL ENGINES: In addition to present models, Caterpillar Tractor Company is now producing four new engines ranging up to 300 hp., and four new Electric Sets generating up to 314 kw. Ask for specifications.

LOCOMOTIVES: Write for Goodman Manufacturing Company's Bulletin CL-491 which describes its trolley, storage battery and combination types of locomotives.

DIAMOND CORE DRILLING: Boyles Bros. are equipped to give you complete service in exploratory and blast hole drilling or tunneling operations. Request details.

CRUSHERS: Nordberg Manufacturing Company's Symons Cone crushers are available in three types—standard, short head and intermediate—and in a wide range of sizes to fit your requirements.

FLOTATION: Dow Chemical Company's new "Flotation Index" is now ready and available upon request. It is a comprehensive handbook of flotation fundamentals.

CONVEYORS: Jeffrey Manufacturing Company's belt or chain conveyors will meet your operating conditions. These sectional type conveyors mean continuous transportation at low cost. Complete information upon request.

SHOVEL LOADER: The Joy HL-3 Shovel Loader for small drifts can load up to two tons per minute. Write for details.

GEIGER COUNTER: W. D. Brill Company's pocket-size "Nuclear Sniffer" weighs only two pounds and uses two ordinary flashlight batteries for power.

ORE TESTING SERVICE: Complete information on laboratory ore testing as provided by the Denver Equipment Co., representing experience data derived from working with over 150 different commercial minerals and materials from all parts of the world.

THE OSGOOD COMPANY will send complete details and specifications of their power shovels, cranes, draglines, clamshells, backhoes, pile drivers and their metered Osgood Air Control, and application of their equipment in mining operations.

ROTARY DRYERS, KILNS, COOLERS: Hardinge Company has just released a 32-page catalog on its complete line of "Rugles-Coles" rotary dryers, kilns and coolers. Ask for Bulletin 16-D.

MINE CARS: Catalog No. 40 will describe C. S. Card Iron Works' mine cars.

AUXILIARY CORE DRILLING EQUIPMENT: Joy Core Drill Supplies and Equipment is the title of a new catalog on auxiliary core drilling equipment recently issued by Joy Manufacturing Company. When requesting Bulletin D-18 state type core drill on which equipment will be used.

CLASSIFIER: Just off the press is The Dorr Company's Bulletin No. 2281, which describes and illustrates a new and distinctly different Dorr classifier.

GYRATORY CRUSHERS: Important features, general dimensions and capacity information on the Superior McCully gyratory crusher for primary and secondary reduction of stone and ore are described in Allis-Chalmers Manufacturing Company's Bulletin 07B0004B.

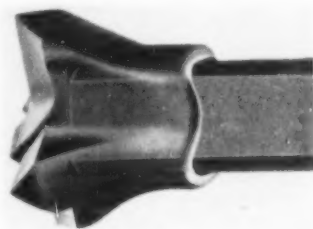
BLASTING: The twelfth edition of E. I. du Pont de Nemours & Company's "Blasters' Handbook" is now available. Copies at \$1.50 each.

MECHANIZED UNDERGROUND LOADING METHODS: Complete data on mechanical loading methods, sizes, types of machines and specification for varying underground conditions can be obtained from literature published by Emco Corporation.

DIESEL ENGINES: Four new bulletins have been published on Nordberg's new one-cylinder engine. Specifications, detailed information and outline drawings of Nordberg Model 4FS-1 Diesel engines as adapted to power takeoff with and without clutch, generating units and pumping units. Ask for Bulletins 166, 167, 167-A and 168.

ELECTRIC TOOL PRODUCTS: Independent-Pneumatic Tool Company has released new literature on the company's latest universal electric tool products. Catalog E-2.

Copies of all bulletins may be obtained by writing: MINING WORLD, 121 Second St., San Francisco 1, Cal. Please refer to bulletin number and issue in which it appeared.



Timken's new throw-away bit

Timken Introduces New
One-Use "Spiralock" Bit

The Timken Roller Bearing Company has just announced the introduction of a new type of rock drilling bit which is expected to offer unequalled advantages for many drilling conditions.

Known as the One-use "Spiralock" bit, the bit has been designed to provide economies that have not been possible in the past, and is intended primarily for use where bit reconditioning is impractical or undesirable, and is designed for fast drilling at low cost. It has a revolutionary "Spiralock" attachment, the superiority of which has been proved under actual on-the-job conditions.

The new "Spiralock" bit is not intended to compete with the Multi-use Threaded bit or the Carbide Insert Threaded bit as it is in a class by itself, its biggest asset being its low cost and operating economy when used in suitable ground.

Mining Men

Continued from Page 20

10 years Williams had been a member of the bureau's safety staff at Duluth, Minnesota, and prior to that was connected with the Butte, Pittsburgh, and Wilkes-Barre offices. The first work which he will undertake at his new assignment is an inspection of the coal mines on the Navajo, Hopi and Zuni Indian Reservations in northern Arizona and New Mexico.

Andrew Fletcher, president of St. Joseph Lead Company, New York, and Donald A. Callahan, president of Callahan Consolidated Mines, Inc., Wallace, Idaho, were reelected vice presidents of the American Mining Congress recently. W. J. Jenkins, president of the Consolidated Coal Company of St. Louis was elected a vice president to succeed James D. Francis, chairman of the Board of Island Creek Coal Company, Huntington, West Virginia.

F. M. Rich, vice president in charge of operations for Kaiser Steel Corporation, has transferred his headquarters from Oakland, California, to the mill at Fontana. The move was made in connection with the increased volume of operations at Fontana and the further increase that is anticipated when the new hot strip mill and electric weld pipe mill go into operation.

Otto Berglund has returned to Colville, Washington, to put his property, the Magma mine, in shape for operation. He has installed a 315 compressor with a 50 horsepower electric motor and may start diamond drilling operations himself unless he decides to lease the property.

Roy A. Hardy, consulting engineer in charge, Getchell Mine, Inc., Reno, Nevada, accepted the chairmanship of the program committee for the 1950 American Mining Congress Metal Mining Convention and Exposition. D. D. Moffatt, chairman of the Western Division of the American Mining Congress made the announcement and advised the convention would be held in Salt Lake City, Utah, on August 28-31. The 1951 convention of the Western Division will be held in Los Angeles at the Biltmore Hotel, October 21-24.

Ernest Thurlow, geologist for the Atomic Energy Commission, can be reached at its new office at S. 157 Howard Street, Spokane, Washington, in quarters also occupied by the Geological Survey, Department of the Interior. He recently made examinations for uranium in Idaho's Coeur d'Alenes and at Boulder, Montana, and found deposits now being worked in the Idaho district.

Obituaries

Julius P. Heil, 73, founder and chairman of the board of The Heil Company, Milwaukee, Wisconsin,

died November 30 while pheasant hunting in southern Wisconsin. He at one time was governor of the state.

G. A. Peacock, 44, mine superintendent of the Ray Division, Kennecott Copper Company, Ray, Arizona, died at his home on November 30.

Hans Amlie, 52, mining engineer and prospector, was asphyxiated December 14 at Somerton, Arizona, as he tried to clear the screen of a septic tank.

Walter Stoll, 61, president of the Alaska Pacific Consolidated Mining Company, died November 12 at Seattle, Washington, where he was flown for medical attention.

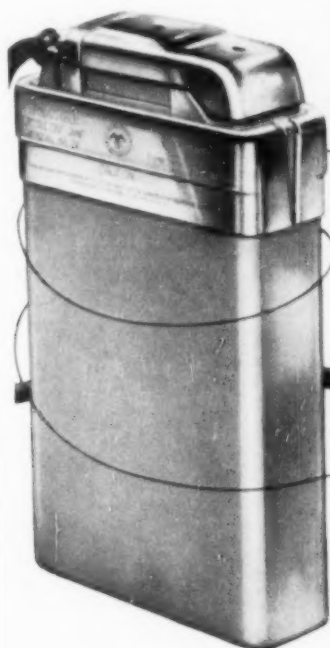
Charles T. Worthington, vice president of the Trail Creek Mining Com-

pany, Inc., died December 7 at Colorado Springs, Colorado.

D. C. McKay, mining engineer and for many years general manager of the Mindanao Mother Lode Mines, Inc., Philippine Islands, died at the end of November at Belmont, California.

William Harding Plummer, 77, retired Oliver Iron Mining Company general superintendent of the Coleraine district of the Mesabi range, died December 17 at Two Harbors, Minnesota.

Simon Jacobson, 60, former smelter superintendent of the International Smelting and Refining Company in Utah, died December 7 at Springfield, Oregon.



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Vermiculite Mine Opened By New Montana Firm

The old Bitter Root mine on the North Fork of Girds Creek, 20 miles from Hamilton, Montana, is being developed and mined for its large tonnage of vermiculite, an insulating material, by the newly formed Girds Creek Vermiculite Products Company.

The mine is owned by Mrs. G. H. Garnett and Mrs. Swift Chamberlain and is being worked by Bob Chamberlain and Cliff Jacobson, who are also the principal stockholders in the company.

A small exfoliation plant capable of producing from 80 to 100 sacks of finished vermiculite per hour has been built to handle the mineral at present. Later, a larger plant is contemplated in order to handle the large amount of ore. Two veins have been opened up in the mine, one containing an estimated 35,000 tons of nearly pure vermiculite.

Bunker Hill to Build New Smelter Stack

A new lead smelter smoke stack is to be installed to replace the 30-year-old one now in use at Bunker Hill and Sullivan Mining and Concentrating Company's plant, Kellogg, Idaho, according to J. B. Halfner, general manager. The stack, to be built this spring, will cost about \$100,000 and will be somewhat higher than the existing one.

This project is just one feature of the modernizing program for the mine, mill and smelter units in order to keep up with increased production from the mines in the area and to handle Sullivan Mining Company's extra zinc plant residue. A new Dwight and Lloyd charge preparation plant may be installed also.

Silver Dollar Drifts On New Silver Vein

At Osburn, Idaho, a drift on a new silver strike in the Silver Dollar Mining Company's Chester vein has continued in good ore for 75' and gives indications of continuing. Silver Summit Mining Company is doing the development under a profit-sharing agreement with Silver Dollar. The find was made when a crosscut was driven 30' in a northerly direction from the Chester lateral, another long drift being run from the 3,000' level tunnel on Silver Summit's ground to

connect with Silver Dollar's 2,800' level.

Recent work done by Silver Dollar on a showing on the 2,800' level, 230' above the new find, proved non-commercial. Officials therefore believe the new discovery may indicate another deep ore showing such as that found last summer on Summit's 3,000' level.



Partly because of a new ore find between the 800' and 1,000' levels, operations have been stepped up at Sunset Minerals, Inc., Kellogg, Idaho, according to Bliss Moore, vice-president and manager. A new 300 cu. ft. compressor was installed recently at the shaft collar, about 5,000' from the portal of the adit tunnel. Power lines are being built to it. Three shifts are

operating the mill and a second shift has been added to the mine crew. About 80 tons of lead-zinc-silver ore goes through the 150-ton mill daily, and capacity milling is planned in the near future.

Coeur d'Alene Mines Corporation has opened up an encouraging though non-commercial vein in the 2,800' level drift on the American Silver Mining Company's "B" vein. President of Coeur d'Alene, Dr. H. C. Mowery, said the find was a north-south quartz structure with siderite, tetrahedrite and pyrite showings. The mine is at Osburn, Idaho.

A 500-ton mill is to be installed on the Bundy Silver and Lead Mines, Inc., property on Willow Creek, thirty-six miles east of Hailey, Idaho, according to Tom Young. The company is operating the Croesus mine under lease and has several other properties, including twelve unpatented claims of its own and eight under lease from the Severe brothers. They also own several claims in the Smoky district to be developed later. Drifting is under way in two tunnels in the Croesus mine. Values are in silver and lead.

A strike of silver-copper ore was made recently by Silver Summit Inc., Wallace, Idaho. The ore was found on the 3,000' level in Silver Dollar's ground where 50 percent of any ore found belongs to Silver Summit. At last reports the vein had been followed for 80' and was returning better—though still not commercial—values than ore found 230' higher on the level in Silver Dollar.

Washington — Idaho Mining Company is completing installation of a pumping plant and plans to resume development of an ore-bearing structure on the 300' level immediately afterward. A new ore body found during exploration last summer and believed to be the downward extension of the structure being worked on the 200' level is to be explored. A stockpile of lead-zinc-silver ore from the 200' level is being accumulated meanwhile. Bruce Allgaier is general manager of the company which operates northeast of Kellogg, Idaho.

The conditions on the 900' level of Hypotheek mine are beginning to shape up, and according to recent reports quite a bit of lead ore was left by old operators. The mine, now owned by Hypotheek Mining and Milling Company of Wallace, Idaho, was started in 1905 and abandoned in 1926. The company has unwatered down nearly to the 1,100' level and is cleaning up and retrimbering as it



Montana Mines Phosphates

The Montana Phosphate Products Company is operating currently three underground phosphate mines in Powell County, Montana, the Anderson mine, the Luke mine and the Graveley mine. Above is a view of the ore bin and headframe of the Anderson mine, which was developed originally by tunnels driven in the hillside through the hanging wall formation at regular levels but as the downward extension cut under the bed of the valley a shaft had to be sunk. Mining methods at each mine differ considerably. R. J. Armstrong is superintendent of the company and J. J. McKay is assistant.

goes. About 10,000 tons of ore has been tentatively blocked out, although this figure may not hold if it is found that former operators mined out the vein below the present working level.

About 3,000 tons of silver-lead ore belonging to *Lucky Friday Silver-Lead Mines*, Mullen, Idaho, will go through the *Golconda* mill when milling operations now in progress are completed. John Sekulic, president, said that 2,500 tons will come from the stockpile and 500 tons from further mining on the 1,000, 1,400 and 1,600 levels of the *Lucky Friday* mine.

Near Keillogg, Idaho, *Highland-Surprise Consolidated Mining Company's* main orebody, the *Surprise No. 1*, has been discovered to be 60' closer to the shaft on the 1,300' level than expected. The crosscut intersected at 140' rather than at the expected 200', and Frank J. Luedke, president, advised this meant a longer extension of ore than anyone realized. Diamond drilling has indicated a width of 21', and drifting is under way.

Installation of a 100-ton mill will begin shortly at *Sun Valley Lead-Silver Mines* property near Ketchum, Idaho. Diamond drilling is now under way and several shipments of ore have been made during the past few months. General manager of the company is R. L. Roundy of Wallace.

Directors of *Hope Silver Lead Mines, Inc.*, Clark Fork, Idaho, advised that all work at present is being concentrated on a drift in the new shaft on the 700' level in order to reach known orebodies established by a Bureau of Mines diamond drilling program. At a recent meeting of the board, Glenn C. Lee was elected president, replacing Albert Nash, resigned.

Over 400' of crosscutting has been completed by *New Rainbow Mining Company* in its plan to get under an ore showing uncovered on the surface by bulldozing some time ago. About 400' more remains to be driven, so that the crosscut will connect with a 50' shaft in which there is a showing of lead from which ore will be removed. The mine is in Idaho's *Coeur d'Alene*, and George Austin is president.

The *Carrie Creek Mining and Development Company* has been organized by L. G. Blakemore, Los Angeles mining engineer, and his associates to develop a group of claims in the Little Smoky mining district east of Boise, Idaho. Blakemore says the district produced about \$3,000,000 worth of silver-lead-gold-copper ore around 1900 and that considerable mining is left to be done. The company will develop an old mine and plans to install a small mill near Fairfield. The operating company now being formed will be *Western Consolidated Mines, Inc.*, and will also work 5,200 acres in Death Valley, California, containing large deposits of talc, salt and gypsum.

Full scale operations are being carried

on this winter by *Clayton Silver Mines*, Clayton, Idaho, according to Norman M. Smith, directing engineer. The 100-ton mill is running to capacity with ore from the 300' and 400' levels. Three 3-GT Ingersoll Rand pumps with 60-hp motors rated at 400 gallons per minute at a 400' head were recently installed and, combined with three smaller pumps, take care of the water on the 400' level. Drifting continues on the 400' level and is within 200' of the north ore shoot, which has been mined above the 300' level.

Inspiration Lead Company, Inc., and *Silver Ore Mines, Inc.*, resumed operations at the end of the year (following the strike shutdown) and are working in the two drifts on the vein off the main tunnel. The program is one of joint development in the Placer Center district, northeast of Osburn, Idaho. The drifts, 200' and 250' respectively, follow a three-foot quartz vein showing galena. During the three years of major exploration work by the two companies, *Silver Ore's* property has been crosscut its entire width and half of *Inspiration's* holdings have been explored.

An interest in *Apache Mines Company*, Hailey, Idaho, has been acquired by Clarence A. Dye, head of the *National Metals Company*, and now vice-president and general manager of *Apache*, an operation consisting of a consolidation of twenty old mines in the Bullion Gulch area about five miles west of Hailey. A 150-ton flotation mill has been operating full time on dump ores and will mill mine ores from now on as the mines are being opened up. Shipments of lead-silver concentrates go to Salt Lake Valley smelters and zinc-silver to Great Falls, Montana. A crew of twenty-four men is employed, with L. G. Lanning in charge of mining operations, and H. B. Murphy in charge of milling operations.



Considerable development is planned by the *Lexington Silver-Lead Mines, Inc.*, on its property near Neihart, Montana, formerly run by the *Lexington Mining Company*. The mine has a shaft to the No. 1 level, 160' below the main tunnel, and several hundred feet of drifts. Lateral exploration has been done by diamond drilling. All mining and milling equipment necessary for operation is on the property and milling operations are expected to begin soon, as well as further exploration by both east and west crosscuts. C. A. Fay, mining engineer, is in charge of development and operations. J. A. Allen is president and W. E. Cullen, Sr., vice-president.

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At the *Free Enterprise* uranium prospect near Boulder, Montana, a shaft has been sunk to the 150' level, a small sump has been cut, a short crosscut to the vein is being driven. A complete surface plant has been installed and all necessary mining equipment acquired by *Sunshine Mining Company* in its speedy development program begun in October. At that time *Sunshine* made an agreement with the *Elkhorn Mining Company* of Boulder, which has a lease on the property, to take over the exploration and development. Carnotite and torbenite appear to be the main minerals found so far.

If the long standing litigation over rights to the *Mouat* and *Bearbow* chrome mines can be solved, one of the biggest chrome deposits in the country probably will be mined again. Estimates of chromite ore reserves in the *Mouat* mine at Nye, Montana, run to several million tons. During the war the government developed the claims at a cost of \$20,000,000 and then abandoned them. Should mining be resumed, about 1,000 men could be employed. M. W. Mouat has stated that he would develop the claims commercially if the case over the title of ownership is decided in his favor. If decided in the government's favor, conjecture remains whether or not operations will be resumed.

C. L. Hewitt, general manager of *Sicanaa Mines, Inc.*, Lincoln, Montana, advises that in choosing a new millsite for a mill to replace the one burned a while ago, considerable benefit to the mine will be effected. The old mill was located opposite the main haulage tunnel at an elevation of 6,000'. Ore was mined from the level below, hoisted up and sent to the mill. Considerable water was encountered in those workings. Now a

new 2,000' adit tunnel at 5,500' elevation is being driven to get at the ore and to eliminate water and hoisting difficulties as the new mill also will be at this elevation. The company has built a new change house, compressor and shop building, has installed a 650 cu. ft. compressor, a new mucking machine and locomotive for tramming. Drifting and raising on two veins are under way; one is expected to be cut at 800' and another at 1,000' below the surface, and 500' below the old workings.

The *Al-Con Mining and Engineering Company* has leased its recently opened mining property in Peterson Gulch, Madison County, Montana, and is now completing a \$4,000 road into another old mining property in Sand Creek, according to M. R. Massey, engineer. Ore is being shipped from dumps in the lower workings and with the completion of the road to the upper levels more ore from dumps there will be shipped. Machinery is being moved in in preparation for running a 1,000' drift to open ore bodies exposed on the surface by several shafts and winzes.



In an area near Ashland, Oregon, where scheelite was found last summer, plane table work is being done by Harold Wolfe and David White, geologists with the State Department of Geology and Mineral Industries. As a guide to further prospecting, the men are trying to obtain a structural picture of the scheelite occurrences.

Manganese Products, Inc., of Seattle, has bought the Salem, Oregon,

alumina plant for \$750,000, from the War Assets Administration. The government built the plant for \$5,600,000 during the war. *Manganese Products, Inc.*, now is said to be arranging financing.



Capacity operations are planned by *Pacific Northwest Alloys* company at its Mead, Washington, magnesium plant, according to president Leo H. Timmins of Montreal. The plant was closed down from August through November last year due to steel strikes and other countrywide economic factors but will now start getting its three furnaces in operation, one by one. About 130 men are on the payroll with more to be added as additional power becomes available from *Bonneville Dam*.

About 30 miles south of Roslyn, Washington, a uranium concentrating mill is being built, according to reports. The mill is to handle ore from a 2,000' vein said to be between 300 and 500' wide.

Kaaba Silver-Lead Mines Inc., *Nighthawk*, Washington, resumed operations in November after being shut down since June, 1949, for the purpose of reorganization and preparation of a well-defined program for the mine. This program is hoped to provide maximum benefit from the operation of the recently increased mill capacity to 300 tons daily, an increase effected by installing a new sink-float plant. Sinking operations are under way for an additional 150' on the present shaft, and opening up and drifting north and south on the 7th level is progressing.

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Bids Received on Mesabi And Cuyuna Units

The Minnesota State Executive Council received fifty-three bids on 37 mining units from 12 bidders on December 12. The various properties are located on the Mesabi and Cuyuna ranges.

In the lead with 17 bids was Oliver Iron Mining Company, followed by the W. S. Moore Company of Duluth with nine; Pacific Isle Mining Company of Hibbing had six; E. W. Coons Company, Hibbing, five; Zontelli Brothers, Ironton, three; Iron Range Mining Company, three; Cleveland Cliffs Iron Company, two; Hanna Ore Mining Company, two; Syracuse Mining Company, two; Joseph A. Lavallo, Mt. Iron, two; Rhude and Fryberger, Duluth, one, and Harold A. Engman, Virginia, one.

Wisconsin Mine Extending Shaft to 40th Level

The Montreal Mining Company, Montreal, Wisconsin is extending its No. 6 inclined shaft from the 39th to the 40th level. Deep development continues a necessity at the mine in order to keep its large production rate up. The No. 6 is used as a supply entrance from the surface to the deep workings and as an auxiliary hoisting shaft below the 35th level.

The main hoisting outlet is the No. 5 vertical shaft which ends at the 35th level about 3000' from the surface.

The Montreal mine has been producing 1,000,000 tons of iron ore per year for nearly a decade.

Iron Ore Production in New York Increases

Iron ore mines in New York's Adirondack Mountains exceeded all previous records for production last year, according to Dr. John G. Broughton, state geologist with the State Department of Commerce. A total of 7,850,000 long tons of crude ore was mined in 1949. Concentrate and sinter ore sent to the country's steel mills amounted to 2,900,000 long tons, valued at \$24,385,000, or twice the value of ore produced in the state in 1942.

Six mines were in operation during the year, involving the Republic Steel Corporation, which has the Mineville-Port Henry and Lyon Mountain properties; M. A. Hanna Company, which

mines near Degrasse, in St. Lawrence County; and Jones & Laughlin Ore Company which operates an open-pit mine near Star Lake.

Cleveland-Cliffs Awards Stripping Contract

The Cleveland Cliffs Iron Company has given a contract to A. Lindberg & Sons of Ishpeming, Michigan, for stripping about 40' of surface from an estimated 80,000 tons of iron ore at the east end of Lake Angeline within the city limits of Ishpeming. Work has already begun.

Because Lake Angeline's water level is rising, the ore must be re-

NIELE E. STEARNS



has been elected to the new office of executive vice president of the Inland Steel Products Company, a subsidiary of Inland Steel Company. Stearns has been with Inland since 1940. He will assume his new duties in Milwaukee, Wisconsin.

covered as fast as possible, and officials believe this can be accomplished by spring. The product will be stockpiled at the Lake Shaft stocking ground to await transfer to railroad cars for shipment to the L. S. & I. dock at Marquette.



In the upper peninsula of Michigan near Lake Superior, discovery of a radioactive deposit has been reported by Eiler Henrikson, geology instructor at Carleton College, Northfield, Minnesota. Jones and Laughlin Ore Company of Pittsburgh is said to be planning to drill after the spring thaw to determine whether or not the radioactive showing is of commercial value. Chief geologist Leslie F. Barrett indicated that little was known yet about the deposit and its extent.

From 18,000 to 20,000 tons of copper ore per month is being milled by the Copper Range Company, Painesdale, Michigan, from its Champion mine. The ore is sent by rail to the company's concentrator at Freda on Lake

Superior. The resulting concentrates are reduced at the Calumet & Hecla smelter at Hubbell.

An attempt is now being made by the Rosiclare Lead and Fluorspar Mining Company to seal off subterranean channels through which several thousand gallons of water per minute have been entering its fluor-spar mine at Rosiclare, Illinois. Early in 1949 a number of underground diamond drill holes were drilled to intersect the watercourses at three points in the mine and pipes leading to the surface were tapped into them. The mine was then allowed to fill with water so as to produce a static condition of water movement underground. In October and November the Halliburton Oil Well Cementing Company pumped into the connecting pipes quantities of cement grout containing bentonite. The effectiveness of the grouting will not be known until unwatering of the mine is attempted.

Among the principal zinc mining operations in the northwest Illinois district is that of Tri-State Zinc, Inc., operating its jig and flotation mill and Gray mine, 4½ miles south of Galena, Jo Daviess County. A recently completed 1,700' truck haulageway connecting the mine with the surface permits faster and more economical transfer of ore from underground shovels to the mill. Capacity of the mill has been increased during the year to a figure approaching 850 tons.

The Eagle-Picher Mining and Smelting Company is continuing development of its Graham-Snyder mine four miles north of Galena, Illinois. The Graham-Snyder deposit, in which it is reported that 1,500,000 tons of zinc ore has been blocked out, was discovered and outlined during a campaign of prospect drilling begun in the Illinois district in 1946. The company has completed and put into operation its 1,200-ton flotation plant at the mine.



Reynolds Aluminum Company, a subsidiary of Reynolds Metals Company, has bought four aluminum plants and a sinter (cinder) plant from the General Services Administration. The plants have been operated by Reynolds by lease with option to buy since 1946 when the

government, which built them during the war, allowed their operation by private interests. The properties are an alumina plant at Hurricane Creek, Arkansas, an aluminum reduction plant at Jones Mills, Arkansas, and another at Troutdale, Oregon; an aluminum sheet and rolling mill at McCook, Illinois. The sinter plant is used in connection with the Hurricane Creek plant. The plants cost the government over \$130 million, and Reynolds over a 25 year period will pay \$78 million for them. Jess Larson GSA Administrator, said that the sum plus the profits made during the war represented a 95 to 100 percent return of costs to the government.

Alabama Flake Graphite Company of Birmingham, Alabama, is producing 40 tons of graphite per week at its Ashland, Alabama, plant. The mine has the largest deposits of crystalline flake graphite in this country. Ceylon, Bavaria and Madagascar are the other major sources of the mineral.

Appalachian Mineral Company is producing commercial glass makers feldspar from deposits near Monticello, Georgia, discovered in the last few years. About 750,000 tons was developed then by shot drilling, and estimates of reserves run several times that amount. The company expects to be able to use dry recovery methods for about ten years, as enough valuable ore exists for this

process. Flotation methods will then be used to treat the lower grades of ore. A fine grinding unit is now being erected as an addition to the granular plant and 200-mesh feldspar is expected to be available soon.

Several large undeveloped sulfide deposits in Carroll County, Virginia, are potential sources of iron and sulfur for southeastern industrial plants, according to the U. S. Bureau of Mines, which has been investigating the orebodies. The deposits extend over 16 miles along the Blue Ridge Mountains near the border of North Carolina and are called the Great Gossan Lead, a producer of iron and copper ores in the early 1850's.



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The Iron Range Resources and Rehabilitation Commission of Minnesota has appropriated \$30,000 which will be matched by the U. S. Geological Survey to continue and complete the topographic mapping of the Mesabi range of Minnesota. Under the supervision of Ben K. Constantine of the Commission and G. M. Schwartz, director of the Minnesota Geological Survey, the work may take three years to finish.

The M. A. Hanna Company, Hibbing, Minnesota, has installed a deep well pump in the old Morton mine shaft and is pumping from it in preparation for stripping operations in the near future. Work will begin soon with an electric standard shovel. At Conley, the company's subsidiary, Butler Brothers is continuing diamond drilling at the Harrison group of mines.

Stripping operations are being carried on at eleven Packard Mather & Company mines in Minnesota. On the Mesabi iron range, active mines are the Miller-Mohawk, Embarrass, Biwabik, Corsica, Bennett, Wade, Scanton, Mahoning and Danube. On the Cuyuna range, the Sagamore and Mahomes mines are being stripped.

At Hibbing, Minnesota, Republic Steel Corporation is stripping the Susquehanna open pit mine. At Crystal Falls, Michigan, the company is stockpiling from underground production from the Tubin mine and is engaged in exploratory diamond drilling for iron ore on the Hagerman property, using two drill rigs. At Ironwood, Michigan, stockpiling continues from the Penokee mines.

The Snyder Mining Company is continuing underground mining at the Shesungu mine, Chisholm, Minnesota, on a three-shift basis. At Hibbing, two shifts are stripping at the Webb open pit mine.

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Colorado Firm Expects To Install Mill

The recently formed Cripple Creek Development Company, which has been exploring and leasing properties in the Cripple Creek, Colorado, district for several months, expects to install a 350 to 500 ton mill when sufficient ore has been proved.

According to Sam Bailey, supervisor of the firm's activities, drilling is proceeding on the Iron Clad group of claims, once operated by the late Tom Kavanaugh. The object is to prove a large open pit mining project on a relatively low grade but extensive orebody.

Markley Gold Property Reopens in Colorado

After several months of being shut-down, the Mollie Kathleen mine began operating again in November. All underground work is done by split check lessees. The mine, a gold property owned by Markley Mining and Exploration Company, is on Tenderfoot Hill at Cripple Creek, Colorado. Lee Brown, superintendent, made the announcement of the resumption of work.

The lessees are Franklin Ferguson,

who is mining on the 10th level, Hammer and Phillips, mining on the 8th, and Mike Daniel and Cub Peterson, who are developing ore in a winze between the 10th and 11th levels and Jones and Frazier, who are crosscutting on the 11th to cut an extension of Ferguson's orebody. The Markley company is developing and prospecting the 11th level.

Cause of shutdown was partly the absence of a reduction mill in the district. However, as the company has several good orebodies to work on, some carrying lead and zinc, and as sufficient room exists to stockpile six months of milling grade ore, the decision to resume mining was made.



Under the direction of William M. Traver, Jr., chief of the Bureau of Mines mining division for Colorado, a three man crew of Bureau employees is beginning a test bore at the inner end of the 6,600' Leadville drainage tunnel. A small test bore with a core drill will be made first for

700 to 1,000' along the planned route of the main tunnel extension to determine what kind of ground will be encountered and how much water. Drilling of the long-awaited main bore is expected soon.

A new plant to process uranium may be built in the Grand Junction, Colorado, area by Vitro Manufacturing Company, depending on the outcome of investigations of deposits by the firm. The plant would cost over \$500,000. Vitro now has a plant at Canonburg, Pennsylvania, and has been extracting radium and uranium from government scrap materials there for some years. The recent discovery of uranium near Marysville, Utah, has brought some discussion of another plant there. Meanwhile, the U. S. Vanadium Corporation has its rehabilitated mill at Uravan, Colorado, operating again.

Resumption of mining operations at Gold Empire, Inc.'s, property in the Beacon Hill-Rosebud Hill area, Colorado, is expected soon. Clyde T. Carson, president, has been at Cripple Creek recently in order to get details lined up for the reopening. Capitalization of the company has been doubled in order to cover the large-scale improvement and development program planned for its 50 claims, and about \$200,000 will be spent in the next several years to carry out that program.

Mining and milling operations are about to begin at the Lamartine group of claims, Idaho Springs, Colorado, by the Montana Mining Development Company. The company bought the Lamartine mill and claims from A. D. Johnston and his associates, former owners, and also have a lease on the Oneida mine. Rehabilitation of the mill and buildings is nearly finished, according to Charles R. Anderson and his brother, James, who will be in charge of the operations. The mine produced a good grade of gold-lead-zinc in the early part of the century but has been operated sporadically since then.

An option has been taken on the controlling interest in the Lead-Carbonate mine by Joseph M. Bradley, who has engaged George Argall, mining engineer, to inspect the property and take samples. The mine is near Silverton, Colorado, at an elevation of about 11,000' and is equipped with a 40-ton mill.

A uranium strike has been made by the Ajax Mining and Oil Company 2,000' up the side of a mountain out of Gateway, Colorado, 35 miles from

WELL DONE, BEN! GOOD LUCK



From the petroleum provinces of Patagonia to Navy Pot. 4 at Point Barrow, from the gold mines of the Golden West to the copper camps of the Congo, up to the airborne magnetometer crews, down into the depths of Butte, the word has been passed: "Ben is leaving the Colorado School of Mines" for Dr. Ben H. Parker, President of the Colorado School of Mines, has resigned as of April 1, 1950.

In the four years of his administration the faculty at the school increased in number from 52 to over one hundred; the student body from six hundred to 1,285, and the dollar value expended for new buildings, laboratory equipment and research facilities approached that spent in the first 71 years of the school's existence.

Of greater importance to the minerals industry has been the creation of coal mining, and petroleum refining courses, the establishment of a registrar's office, a department of research and development, creation of the Research Foundation, and dramatic celebration of the school's 75th Anniversary.

The Mineral Engineering field has lost a great educator and private industry has gained an able executive. The many plans and policies formulated under his guidance should continue to benefit the mineral industry. The record made by the School's graduates is unsurpassed.

And so from all those places where engineers seek, discover, develop, produce and purify minerals for the betterment of civilization, tribute is paid to an outstanding friend, educator, and engineer.

MINING WORLD joins in saying: "Thanks, Ben, and Well Done!"

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Grand Junction. The find is in an area not withdrawn by the Atomic Energy Commission for development and investigation, and the main vein of the discovery is said to be 32 to 40" thick and of commercial grade. The property was sold by A. J. Watson to Ajax for development some time ago after he had discovered promising outcrops. Ajax tunneled about 50' into the mountain and then stopped and covered the ore to wait out the winter. A road is being built to the site and camp buildings are being erected. President of Ajax is Carl Schubert, A. D. Engle is vice president and Vern Lee, secretary-treasurer.

Lead-zinc and silver is being bulldozed from surface deposits at the old Last Chance Hilltop workings by Ted Butler near Fairplay, Colorado, with considerable help from the Leadville Lead Corporation, which has supplied trucks and equipment. The deposits are on top of the Mosquito mountain range and difficult to reach, but the returns have been high enough to make the operation pay. So far, 14 carloads of float ore have gone to the AS&R smelter. As Leadville Lead is completing a tunnel through the Mosquito range, operation costs for the Last Chance should be cut nearly in half since transportation will no longer be a problem.

Butler hopes to reopen the original underground drift and pick up the main vein, lost by earlier operators.

Surface trenching has been started by *Engineers Gold Mines, Inc.*, on its 33 patented claims east of Cripple Creek, Colorado. The area the company is working in is a virgin section of the Cripple Creek basin and is expected to give interesting returns. Arthur B. Crowley, resident engineer of the company, did the preliminary work leading to the exploratory trenching. The company expects to reach bed rock through deep trenches and uncover new veins estimated to run parallel to the contact.

Development is continuing at the Baillie-Turnipseed Lease and the Purple Top tunnel at Climax, Colorado, according to A. L. Turnipseed, owner. The tunnel is to be driven another 200' later this year to get under an outcropping of ore on the surface. Shipments are expected to start soon from the mine.



The low grade ore in dumps at Temple Mountain near Greenriver,

Utah, are being worked by various small groups for the uranium content. The possibility of a new mill being built in the area has stimulated interest in re-opening several old mines so that activity is increasing. One such property, the Camp Bird, is under lease to V. W. Faucett, who has had a new loading chute built below the main tunnel and is producing several truckloads of ore per day. He employs six men.

The 48 hour work week has been restored at Kennecott Copper Corporation's Utah Copper Division, according to E. W. Englemann, assistant general manager. The monthly increase in employee wages will be about 30 percent through the paying of time and a half on the sixth day. Increased copper sales were responsible for eliminating the four shutdown days per month in effect since May 23 last year.

Operations are 95 percent back to normal after the three month shutdown in 1949 at New Park Mining Company, Keetley, Utah, according to W. H. H. Cranmer, president. Work is continuing on the Pearl fissure, and a station is being cut on the 1,500' level for another drift of 900' to the fissure to increase the tonnage of gold ore mined. Mining of lead and zinc ores is being held to a minimum because of the present low price.

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Nevada's Famed Austin-Jumbo Will Expand

A capacity production of 1,000 tons per day is planned at the Austin-Jumbo open pit mine in the Awakening district, southwest of Winnemucca, Nevada. The property was reopened a short time ago after a reorganization which dissolved the partnership operating the mine under the name of Red Ledge Mining Company and set up a new organization incorporated under the name Austin-Jumbo Mines, Inc. In 1936 George Austin made a fabulous gold strike at the Jumbo mine, thus providing good reason for the new company name.

The present 500-ton crushing plant will be enlarged to handle the proposed 1,000 tons daily. About 50 percent of the gold bearing ore will be rejected by screening. Ore is free milling and recovery about 85 percent.

The men at the head of the operation are A. J. Kirkman, general superintendent, C. E. Bartlett, consulting engineer, Hollis Chatwin, Reed Richards and Ken Garff.

Nevada Alluvials Treated In Unique Project

After two years of preliminaries, Round Mountain Gold Dredging Company is processing over 200,000 tons of gravel stockpiled at its new mill near Round Mountain, Nevada.

The company is carrying out a \$2,500,000 project financed by Yuba Consolidated Gold Fields, Inc., and the Fresno Company. Ore is coming from the several thousand acres Round Mountain leased from Nevada Porphyry Gold Mines, Inc., and an estimated 67,000,000 tons of alluvials, or about a 15 year supply, exists on the property. To process these ores a top mill production of 17,000 tons per day is planned for late spring or summer.

According to William C. Browning, vice president of Round Mountain and consulting engineer of Yuba, the project is unique in that a gold mining company is able to mine low grade gravel on such a huge scale without resorting to dredging.

George Hall at the Double Eagle claims, 25 miles southwest of San Simon, Arizona. Under the gold deposit was discovered a 24" lead-bearing ledge. Although the first gold samples found had considerable value, no estimate has yet been made on the extent of the ore. The three claims are under lease and bond to Page B. Blakemore of Hanover, New Mexico, who has shipped an air compressor and other equipment to the property and will start mining operations as soon as the machinery can be installed.

GEORGE R. HALL, who, with his partner, Eddie Chapek, is in charge of the Double Eagle mining claims near San Simon, Arizona, where a gold strike was made recently. See item in this section for further details.



Ramsey Mines, Inc., is making arrangements to resume development work at its property in the Plomosa district of Yuma County. As a preliminary step the company is now drilling for water, and then will start general repair and reconditioning. J. A. Davenport, Salome, Arizona, is president and manager. Ore values are in lead, silver and gold.

A crew of seven men employed by the Toledo Mining Company is sinking a shaft at its property in the Eureka district of Yavapai County, Arizona. Ralph R. Thoms of Youngstown, Ohio, is president of the company. Port Mellinger and Rufus Charr of Bagdad, Arizona, are manager and superintendent, respectively.

George W. Kohl, Box 1593, Globe, Arizona, has leased the Reynolds Creek asbestos property, a group of 26 claims in the Young mining district. He has started work on a small scale, employing four men, and is mining about 20 tons of ore a month by room and pillar stopes. Floyd Brown is superintendent. The property is owned by Robert Wells of Tulsa, Oklahoma.

Cy and Manuel Gomez of Morenci, Arizona, have shipped a car of 50 tons of ore from a lease on the Dover

Copper Mining Company's property. The ore, with metal values in silver and gold, was mined from shallow workings.

Bagdad Copper Corporation, Bagdad, Arizona, is maintaining its production on the basis of 90,000 tons of copper ore monthly. All ore is from the open pit where three benches have been established. Four shovels are in regular use. E. R. Dickie, Bagdad, is general manager.

About 450 tons of gold-silver ore is being mined monthly from the Gold Prince property, Dos Cabezas, Arizona. Development of this property has been in progress for a number of months, directed by the owner, W. R. Shanklin. A crew of four is employed.

The Golden Crown Mining Company, Crown King, Arizona, has suspended development work at the Cougar mine and is now drifting and sinking a winze at the Lydia mine. A crew of eight men is employed on a two-shift basis, and a small production of lead, zinc, copper, gold and silver ore is coming from development work. Silas P. Silverman is president and manager of the company.

Production of 400 tons of ore monthly is reported from the Kausa mine, Washington Camp, Patagonia, Arizona. The ore carries values in zinc, lead and copper. Seven men are employed under the direction of Fletcher Merrill, manager.

One hundred tons of fluor spar is shipped monthly from the Lone Star mine, Benson, Arizona. This property is being worked under lease by W. A. Green, St. David, Arizona, in association with M. W. Fry and Woodrow Judd. The Lone Star was previously operated by Cooper Shapley, Jr.

Upshot Mines, Inc., owner of a group of claims in the Big Bug district of Yavapai County, near Mayer, Arizona, has received authority from the Arizona Corporation Commission to issue and sell \$50,000 worth of stock. The proceeds will be used for continued exploration and development work. During recent months the mine shaft was sunk to a depth of 210' and some gold-lead ore developed. The previous development work was directed by Tony Sullivan.

According to an announcement by Allen Harper, general superintendent of the Navajo Indian Reservation, a tract of 56,720 acres of Navajo tribal land north of the Carrizozo Mountains in northeastern Arizona has been withdrawn from prospecting and mining of uranium and vanadium for



A ledge of gold-bearing quartz has been discovered by Ed Chapek and

a three-year period. The action was taken, it was said, to allow the United States Geological Survey to examine and drill portions of the land under supervision of the Atomic Energy Commission. The AEC will be permitted to conduct a reconnaissance survey over the entire Navajo reservation.



A gold-silver strike was made by Lloyd Tripp and Mack Vassar recently on their property eight miles southwest of Havilah, California, and 75 miles from Bakersfield. The ore was revealed 20 inches below the surface on a long ledge 40 inches wide at some points. On the strength of the find the men are considering the installation of a small mill.

A second carload of manganese ore has been shipped from the open pit mine near Quincy, California, owned by W. J. McMillan and Associates of San Francisco and Reno. Utah Construction Company is doing the work with heavy shovels, bulldozers and trucks, and five pits are being worked. The lode from which ore is mined is said to run about 15 miles in a north-westerly direction. Shipments go to Geneva Steel Company's plant at Geneva, Utah.

Penn Mining Company is operating its new 50-ton selective flotation plant and pilot plant, has unwatered the No. 3 shaft to the 700' level and is mining from the 500' level of its mine at Campo Seco, Calaveras County, California. Although formerly a

copper producing property, the main recovery is now in zinc. Lead, gold and silver in smaller quantities are also mined. In order to avoid high freight and smelter rates, the company, through building the new plants, hopes to reduce and separate the five metals to marketable form. The crew employed numbers 18. Harold Hanson is superintendent and A. D. Hadsel, consulting engineer. C. F. Fish, E. J. Harp and Elmer von Glahn are the operators.

Trenching by bulldozer and diamond drilling is in progress at Siskon Mining Corporation's property southwest of Happy Camp, Siskiyou County, California, as part of a large prospecting operation under Frank Katig's supervision. Attention is focused on a gossan outcrop. On the company's land, gold and copper minerals, and iron pyrite, occur in quartz gangue in the shear zones which are accessible by a new road built two miles through the property and five miles beyond to the nearest highway. Hugh Wright is general manager of Siskon, which employs 30 men.

Since the reduction of shipments of Canadian asbestos to the United States (due to strikes), California manufacturers have stimulated a search for deposits of the mineral in the state. The main area in which the search is centered is in Shasta and Trinity Counties in the Highland Lake district.

Development of the Santa Rosa Lead Silver Mine, Keeler, California, is being carried on by R. M. Palmer, who leased the mine last May. About 100 tons of ore has been shipped per month, and Palmer advises that pro-

duction will be increased should the market improve.

Unwatering and development are proceeding at the Domingo gold mine near Hornitos, California, under the direction of J. O'Brien and the Richardson Bros. A small mill will be installed when sufficient ore has been blocked out.

A five-stamp mill is being installed at the Mariposa property, Maricopa, California. The mine was rehabilitated by George F. Adams, A. G. Lane and Frank Gallagher, who recently acquired a lease on it. They expect a substantial tonnage can be mined.

Purchase of the El Dorado Lion, McKenney, Benjamin and Keno Bar, Baker Bar Keno and Egan Flat placer mining claims by Frederick Meckel has been reported. The mines are in Trinity County, California, and were owned formerly by H. B. Murphy.

The Alpha Deer gold mine near Ruby, Sierra County, California, may be reopened. The principal owners, Mr. and Mrs. Eugene Bark, report that equipment is in good shape and little rehabilitation would be necessary, in spite of several years shut-down of the property.



Activity in the Bullfrog district, southern Nye County, Nevada, is increasing. Foley, Hageman and Hines expect to have gold ore ready soon for shipment to the Newmont mill at Rhyolite. The Quinn flotation mill at Beatty is in steady operation, running ore from the Senator Stewart mine. Installation of a tailing plant at the Consolidated Mayflower Mines Company's Mayflower mine at Pioneer was completed recently and the plant is operating.

The Rattlesnake mine near Bonnie Clair, Esmeralda County, Nevada, may be reopened if prospecting and testing now under way is successful. The mine consists of seven patented claims belonging to W. E. Patton, who purchased it two years ago and has leased it to three California mining men, L. A. Moore, Donald Seal and John Desmond. No mining has been carried on at the property since pre-World War I times, although considerable ore was taken out then. A 700' tunnel, extensive workings and three stopes in ore comprise the existing workings.

Custom ore is being run through the Deep Mines Operation mill at Goldfield, Nevada. Companies and individuals shipping their ore to the mill include the Combination Fraction, leased to George Metscher and associates, Red Hill Mining Co. and

Continued on Page 68



THE MILLIONTH TON OF STEEL INGOTS

The millionth ton of steel ingots for the year 1949 was poured December 28 at the Fontana, California, plant of the Kaiser Steel Corporation, marking the first time that a Pacific Coast steel company has made such a record in a single year. Addition of a second blast furnace in October was partly responsible for the achievement as well as increased production of hot pig iron and the addition, a year ago, of a seventh open hearth furnace. Fontana's potential is 1,130,000 tons of steel ingots per year. Above, watching the millionth ton of steel teemed from ladle to ingot mold, are F. M. Rich, vice-president, in charge of operations; George B. McMeans, general superintendent, and E. J. Duffy, his assistant; Barney Dagan, superintendent of the Kaiser Open Hearth Shop; and casting men Sam Ellis, Mike Ledah and Dave Molnar.

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NEW METHODS—NEW EQUIPMENT

M.S.A. Velocity-Power Driver Described

How steel studs can be driven instantaneously into steel, masonry or concrete with the M.S.A. Velocity-Power Driver is told in a new 4-page bulletin No. TA-17 published by Mine Safety Appliances Company. Cost reductions up to 60% over conventional stud-placing methods can be achieved through use of the M.S.A. Driver, says the manufacturer.

Weighing less than 5 lbs., the M.S.A. Velocity-Power Driver uses the energy of a blank cartridge to penetrate steel, to join steel to concrete, wood to concrete, or steel to steel without drilling, plugging, or old-fashioned studding methods.

Special feature of the M.S.A. Driver is a spring-loaded safety arm which prevents accidental cartridge discharge. The safety arm must be rotated 180° and held in position to operate the Driver's firing pin. The firing pin cannot touch the cartridge until positively set by the safety arm. For further safety, only center-fire cartridges are used. The Driver is flashless and almost silent in opera-

tion. Write for bulletin, MINING WORLD, 121 Second St., San Francisco, California.

Distributor Appointments Announced by Nordberg

Six new distributor appointments for the new Nordberg 4FS-1 Diesel engine are announced by Harry M. Cahill, sales manager, Small Engine Department, Nordberg Manufacturing Co., Milwaukee, Wis.

These appointments are: Al-Pac Engine & Equipment Co., Seattle, Wash.; Atlantic Engine Supply, Inc., Boston, Mass.; Bolinders Co., Inc., New York, N. Y.; H. G. McKinney & Co., Wilmington, Calif.; Northwest Distributors, Ltd., Vancouver, B. C.; Canada; and J. N. Vernam Company, Miami, Fla.

The Nordberg Model 4FS-1 Diesel engine is a single cylinder, $4\frac{1}{2} \times 5\frac{1}{4}$ unit rated at 15 HP at 1800 RPM and 10 HP at 1200 RPM. This extra heavy duty vertical type Diesel engine is designed for stationary and portable power generating applications, pumping units, and power units for belt or chain drive or direct connection.

New Perma-Drum Magnetic Separator by Dings

Dings Magnetic Separator Company, 4740 W. Electric Ave., Milwaukee, Wis., announces a new permanent drum type, non-electric Alnico Magnetic Separator, complete with shaft and V-belt drive sheave, for automatic tramp iron removal. This magnet can be installed at the discharge end of chutes, spouts and conveyors for processings feed, grain, rubber, glass, fertilizer, chemicals, plastics, tobacco, minerals, food, coal, sand, textiles, metals and powders.

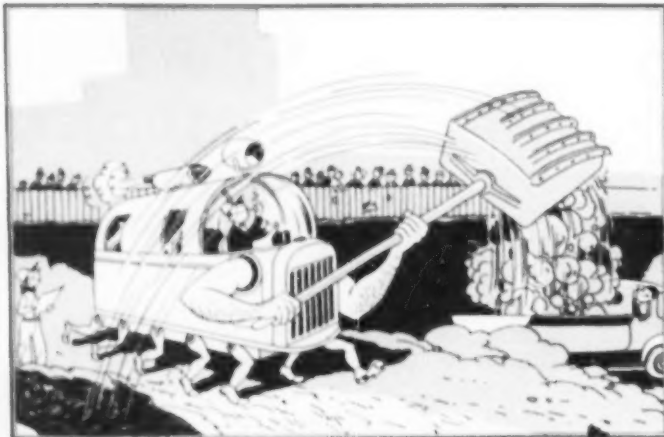
Features include: circumferential pole design for uniformity of magnetic field across the drum width; adjustable dual-purpose leveler and burden feed control; non-magnetic wear- and -abrasion-resistant manganese alloy steel drum shell revolves on sealed, self-aligning ball bearings while the non-electric Alnico magnet inside the drum shell remains stationary; non-magnetic material flows over the drum shell in a normal trajectory; tramp iron holding fast to the drum by the magnetic pull, dropping off when it passes out of the magnetic field; no discharge aids are necessary; no drum shell wear from adhering tramp iron.

Mechanical Shaft Seal Developed by Peerless

For installation on equipment moving or transferring liquids, which requires a positive shaft seal, as well as for replacement of conventional stuffing boxes where packing has proved unsatisfactory, Peerless Pump Division of the Food Machinery and Chemical Corporation has developed a new mechanical shaft seal to provide as perfect a mechanical means for prevention of leaks around a rotating shaft as is possible. They are available in three general classifications: standard, abrasive-resistant and special.

The complete mechanical shaft seal is of Peerless' own design and manufacture and is of the cartridge type. Unit construction makes for easy replacement and maintenance. All liquids can be sealed; the type of seal to be applied depends on the abrasive qualities of the liquid, the corrosion problems encountered and the relative lubricating qualities of the liquid to be handled. Liquids such as water, gasoline, alcohol, hydraulic fluids, ammonia, brines, as well as concentrated or boiling acids and salts can be successfully sealed.

Further detailed information may be obtained by writing the manufacturer, Peerless Pump Division, Food Machinery and Chemical Corporation, 301 West Avenue 26, Los Angeles 31, California, and requesting Bulletin B-571.



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Southwest

Continued from Page 64

Andy Anderson. The Deep Mines Operation is directed by Neumont Mining Corporation.

After several months of shutdown, Nevada Uranium Production Company resumed operations at Round Mountain, Nevada, at the end of the year. W. J. Loring, president and general manager, said new equipment and supplies were added and a raise is being put through to the surface above a winze which was sunk on the vein some time ago. The shaft, when completed, will be 65' deep and follows the vein as does the several hundred feet of tunnel driven by the Heneberg brothers before they leased the property to Nevada Uranium.

Construction and rehabilitation at the Getchell mine at Red House, Nevada, is proceeding rapidly and includes the addition of a new crushing plant, a new flotation section and classifiers and a new 8x12' rod mill, all being installed in the old mill building. Besides this work a 40' square building is being built and a crusher building and pump houses figure in the plans. The company has drilled an auxiliary well to provide 800 to 850 gallons of water per minute, mainly for use in the new mill and partly for domestic uses.

Through reorganization of Castle Mountain Mining Company, Austin, Nevada, Otto Meher of Logan, Utah, has become president. H. R. Fisher is a member of the board and George H. Ryan continues as superintendent. The new plans they have made for the company include the installation of a laboratory and mill testing to determine the advisability of increasing the present milling facilities.

The new orebody discovered at the Red Hill Florence lease on Neumont Mining Corporation's White Rock claim, Goldfield, Nevada, shows very good values and can be reached with a minimum of development according to W. J. Frank, superintendent. The vein has been followed by a raise now up 30' from the 470' level. Frank said he estimated the width of the ore at minable widths and a good showing is now revealed in the raise. On the hanging wall another valuable streak has been providing good ore.

The Mineral farm group of six claims were recently secured and opened up by C. A. Gardner, owner and manager of Gardner Mines. The property is in the Taylor mining district, near Ely, Nevada. Gardner has installed machinery, built an ore bin and has set up facilities for six men. Shipments are now going out, and he reports that the first one ran good silver and gold values. In cleaning up the mine he opened up two faces, one assaying high in silver with good gold values.

Edward J. Turner, a secretary, and Al Torres, an insurance salesman, both of Albuquerque, New Mexico, have discovered the pot of gold—except that it is perlite instead. They own a mountain near Albuquerque which they considered worth nothing but the view. Now they discover there is 10,000,000 tons of perlite in the mountain worth about \$3.00 a ton at the current rate. When their excitement dies down word may be forthcoming about their plans for future development.

Should market conditions improve, development of fluorspar deposits near Deming, New Mexico, could become fairly extensive, according to H. E. McCray, mining engineer. He is continuing development and production on his properties in the Fluorspar Ridge section.

On Empire Zinc Company's property at Organ, New Mexico, James Brown is working in the Memphis mine's old workings to reach zinc and scheelite orebodies known to exist. Brown sold the Memphis to Empire over a year ago but retains a working permit. At the Torpedo mine, op-

tioned by Empire from L. B. Bentley, Montgomery Drunzer is shipping copper-silver-lead ore to the El Paso smelter, and the U. S. Bureau of Mines is said to be organizing a diamond drilling program for the mine.

Erwin and Bishop have finished installing their barite grinding and sacking plant at San Antonio, New Mexico. The firm bought some of the property of the Mer-Tex mines and the Royal Flush mines in the Hansonburg mining district several months ago, and with the completion of the plant should be in production immediately. The company is said to be thinking of putting in a sink-float plant near the mines if a large enough water supply can be developed.

Unwatering of the lower levels of the Buckeye mine, in Water Canyon, Magdalena Mountains, New Mexico, is being considered by Vernon F. Foy, operator. In the upper levels enough copper-gold ore has been blocked out for several carloads to be shipped. Continued development is planned.

Mine Safety Announces New Skullgard Eyeshield

A Skullgard eyeshield for use with Skullgard protective caps or hats has been announced by Mine Safety Appliances Company. Designed of sturdy, transparent plastic, the new eyeshield offers positive pro-

tection against hazardous flying particles, and assures non-fogging vision and easy wearing comfort over prolonged periods of use.

When not in use the eyeshield lies flat against the Skullgard's peak or brim, and is merely flipped down-ward when needed. Eyeshields may be ordered separately, or attached to MSA Skullgards. For complete details on the new MSA Skullgard Eyeshield, write for Bulletin No. DK-14 to MINING WORLD, 121 Second Street, San Francisco, California.

Flotation Described in New Complete Bulletin

"Flotation," the theory, application and result, is treated in a new bulletin published by the Denver Equipment Company.

Originally developed for recovery of mineral values from complex ores, the froth flotation process is now used by many industries. More metallic and non-metallic ore is processed by flotation than any other single method of mineral recovery.

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- 1—24" 15' centers, motorized
- 1—30" 70' centers, motorized
- 1—42" 20' centers, motorized
- 1—24" x 56" centers magnetic pulley feeder conveyors, with charger

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- 2—No. 24 Denver "Sub-A" with wood tanks, rubber impellers

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- 1—6" x 22" Denver Type Duplex Rake Classifier
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- 1—4' x 8' 1-surface, Tandem Hummer Screen
- 1—30" x 6' Trommel Screen
- 1—30" x 15' Revolving Screen
- 1—48" x 9' Revolving Screen
- 1—48" x 16' Revolving Screen

PUMPS—SAND

- 1—2" Split Case Wilfey Pump—rubber lined—motorized
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WRITE FOR BULLETIN NO. 10

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Suite 904 Equitable Bldg.

C. J. PARRISH, Mgr.

Denver 2, Colorado

THE MARKET PLACE

MINING AND MILLING MACHINERY ELECTRICAL, INDUSTRIAL and CONSTRUCTION EQUIPMENT

JAW CRUSHERS

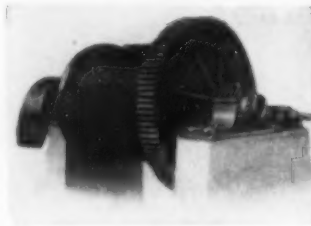
- 1-6" x 9" Universal, cast-steel
- 1-8" x 12" Universal, cast-steel
- 1-8" x 16" Cedar Rapids, all steel
- 1-8" x 24" Rogers, cast steel
- 1-8" x 36" Universal, all steel
- 1-15" x 20" Universal, all steel
- 1-10" x 24" Allis-Chalmers
- 1-24" x 36" Traylor, Type A Bisher
- 1-3" x 15" Farrell Bisher
- 1-0" x 36" Cedar Rapids

LOCOMOTIVES

- 2-3 ton Mancha Battery Locomotive, 18" gauge
- 1-2 1/2 ton Whitecomb Battery Locomotive, 24" gauge
- 1-7 ton Mancha Battery Locomotive, 30" gauge
- 2-7 ton General Electric Battery Locomotive, 36" gauge
- 2-8 ton General Electric Battery Locomotive, 36" gauge
- 4-10 ton Atton Battery Locomotive, 36" gauge
- 1-3 ton Bath Gasoline Locomotive, 18" gauge
- 1-3 ton Whitecomb Gasoline Locomotive, 30" gauge
- 3-6 1/2 ton General Electric Trolley Locomotive, 36" gauge
- 2-1 1/2 ton Mancha "Little Trimmer" Battery Locomotive

FILTERS

- 1-3 x 2 Morse oil metal drum filter
- 1-3 x 4 Oliver drum filter
- 1-4 x 1 disc Morse filter
- 2-6 x 1 disc American filters
- 1-6 x 1 disc American filter
- 1-4 x 1 disc American filter



BALL AND ROD MILLS

- 1-30" x 14" new Morse Bros. batch ball mill
- 2-4 x 4 Standard Ball Mills
- 1-No. 645 Marcy Ball Mill
- 1-4 x 8" Marcy Ball Mill
- 1-8 x 22" Hardinge Conical Pebble Mill
- 1-3 x 8 Devco Tube Mill
- 1-3 x 9" Bath Rod Mill
- 2-4 x 26" Hardinge Conical Ball Mills
- 1-3 x 26" Hardinge Conical Ball Mill
- 1-4 x 48" Hardinge conical ball mill

LOADERS

- 2-2 1/2 B Elmer rocker shovels
- 1-GD-6 Gardner Denver loader
- 1-230 Elmer rocker shovel
- 2-Goodman "Conway" 230A mucking machines
- 4-Goodman "Conway" 250A mucking machines

COMPRESSORS

- 1-80 CFM Worthington, 8" x 5"
- 1-131 CFM Chicago Pneumatic, 8 1/2" x 4 1/2" x 5"
- 1-139 CFM Chicago Pneumatic, 8 1/2" x 4 1/2" x 5"
- 1-194 CFM Gardner Denver, 7" and 5 1/2" x 5"
- 1-284 CFM Ingersoll Rand, 6 cyl. 6" and 5" x 5"
- 2-293 CFM Ingersoll Rand, 12" x 6 1/2" x 10"
- 1-315 CFM Ingersoll Rand, 6 cyl. 7" and 6 1/2" x 5"
- 1-382 CFM Chicago Pneumatic, 4 cyl. 9 1/2" and 5 1/2" x 5 1/2"
- 1-447 CFM Ingersoll Rand, 14" x 7 1/2" x 12"
- 1-520 CFM Ingersoll Rand, 14" x 12"
- 1-627 CFM Sullivan angle compound, 14" and 8 1/2" x 10"
- 1-400 CFM Ingersoll Rand, 10" x 11" x 16"
- 1-888 CFM Ingersoll Rand, 19" x 12" x 18"
- 1-105 CFM Schramm portable straight line, 3-13, 16" x 4 1/2", driven by Buda gas engine trailer mounted on 4 pneumatic rubber tires
- 1-210 CFM Ingersoll portable "Blue Brute," 6" x 5 1/2" x 4 1/2", driven by Continental gas engine, trailer mounted on 4 steel wheels
- 2-310 CFM Gardner Denver portable, 6" x 5 1/2" driven by Buda gas engine
- 1-151 CFM Ingersoll Rand low pressure, 9" x 6"
- 1-272 CFM Ingersoll Rand low pressure, 12" x 6"
- 1-698 CFM Union low pressure, 16" x 12"
- 1-840 CFM Laidlaw duplex low pressure, 12" x 10"

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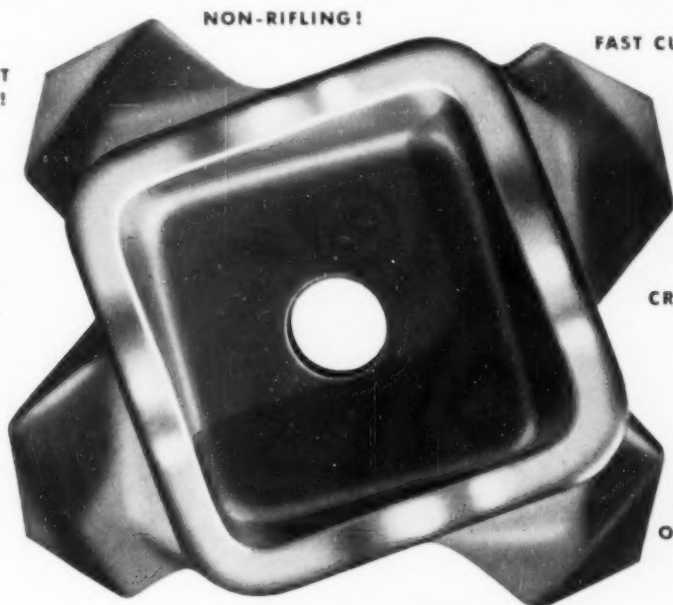
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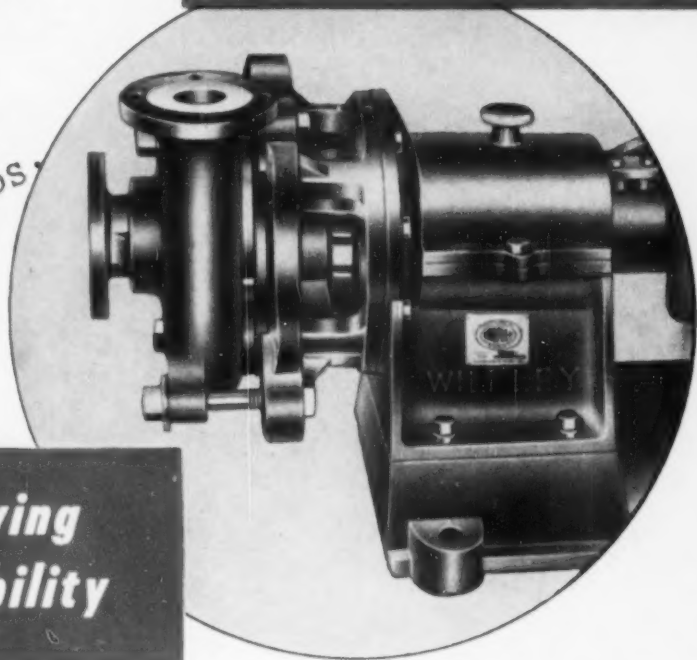
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